

American Forests *and* Forest Life



February, 1928

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ADEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in cooperation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production or the protection of stream-flow; more extensive PLANTING OF TREES by individuals, companies, municipalities, states, and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

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AMERICAN FORESTS AND FOREST LIFE invites contributions in the form of popular articles, stories and photographs dealing with trees, forests, reforestation, lumbering, wild life, hunting and fishing, exploration or any of the many other activities which forests and trees typify. Its pages are open to a free discussion of forest questions which in the judgment of the editor will be of value in promoting public knowledge of our forests and their use. Signed articles published in the magazine do not necessarily reflect the views of the Association. Manuscripts must be accompanied by return postage. Editorial and Publication Office, The Lenox Building, 1523 L Street, Washington, D. C.



Official Photograph, United States Army Air Service

Wings of the Service—the Aerial Fire Patrol

AMERICAN FORESTS

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The Fire Eagles

By HOWARD R. FLINT

Photographs by the Author, Courtesy of the United States Forest Service

LATE in July, after thirty-one days of drought, violent electric storms broke over the northern Rocky Mountains without warning. From the staggering blows of this sudden onslaught more than two hundred fires threatened the National Forests of western Montana and northern Idaho, probably the wildest and roughest forested region in the United States. On a single ranger district, sixteen separate fires were reported.

At daybreak the battle was on. Two thousand picked men, the skeleton protection organization and the temporary fire-fighting recruits of the United States Forest Service were thrown into this smoking amphitheater. They grappled, struggled, sweated and toiled. Here they won and in another place they fell back before fresh onslaughts.

Over it all, their heavy drone, audible above the laboring flames, soared the Fire Eagles, staunch and

tried old De Haviland airplanes, designed and built for combat work in the World War. Restlessly they roared above, the power of four hundred horses cramped in their motors; with greater speed than the swiftest bird and endurance that gloried in hundreds of miles. It was the airplane patrol assigned to the National Forests of the northern Rocky Mountain district. At the controls, vividly alert, were Army reserve pilots; in the rear cockpit were Forest Service officers, busy with maps and pencils, devising ways and means to check the advance of the raging red enemy below them.

The patrol was assigned to this region in 1925 by an Act of Congress which provided for the cooperation of the Forest Service and the War Department in the maintenance and operation of an airplane patrol to prevent and suppress forest fires on National Forests and adjacent lands. The old De Haviland planes were imperfectly equipped in many details for the new task assigned them; yet, zooming easily over the high peaks and slipping neatly through low passes, they responded with surprising adaptability and success. They could swoop low in search of narrow canyons, side-slip into mountain meadows and climb by hard-won, close

spirals out of deep valleys. At times they faltered, but never failed. Often they remained in the air for five hours or more over inhospitable country where a landing would have been a crash. Marvels in their day — and marvels still, in fact, these staunch old planes performed on



Lightning started sixteen fires on one ranger district in a single night. A few of them, just getting nicely under way, are visible in this small picture

equal terms with some of the Eagles of later broods.

On this hazy, gray morning following the storm, a hasty call came to Forest Service headquarters for planes to scout the stricken area, a hundred miles away. Brisk, alert mechanics trundled out the Eagles, checking every detail of preparation with precision and certainty. A brief conversation between pilots and observers; a few pencil lines hastily scribbled on the flying maps. Then:

"Switch off, on and up," the pilots call out.

"Contact," the mechanics reply.

"Contact," repeat the pilots.

At each plane, three mechanics link hands and race away from the propeller, the last one whipped out of reach of its vicious stroke by the other two. Motors roar, warm, race and steady. Nods pass between pilots and mechanics, between pilots and observers, and the Eagles race out to get the wind. They circle wide over the field while the pilots wave to the mechanics watching critically below.

Out over the broad valley, across a mighty river, over a narrow belt of foothills. No time to spare here. An hour of steady, uneventful flying and the mountains loom near. The Eagles swing up the drainage of a mountain creek, fight their way above the high divide, and swing across. Here they circle over a lookout house roosting on the topmost rock of a barren summit. A figure—the lookout—appears below, waving his arms wildly.

Then the Eagles separate, each pointing its nose in different direction. One speeds off over the silver thread of another swift mountain creek. No smoke in this drainage. An easy swing over a low divide and the hunting Eagle roars upward again to scout another drainage. The pilot sits attentively at his controls, while the observer, with maps spread before him, keeps his alert eyes on the unrolling carpet of green and gray hills. No lookout can see into the deep, rugged canyon below. A patrolman on the ground under the dense timber sees little more in proportion than does a mouse traversing a twenty-acre meadow in the little runaways he has carved through his miniature domain.

The plane veers sharply to one side. The pilot leans over the side and points, and the observer nods his understanding. The course of the Eagle is altered toward an ethereal blue-gray whisp hovering above the tree tops a mile away. A scant minute of steady, swift flight and the plane swoops low in a close circle over the curls of smoke. The observer in the rear cockpit needs no further notice. He nods to the pilot, points upward, and the Eagle swings around in a wide circle.

A contour map, pasted on a heavy cardboard, is held on the observer's knee, its fine lines representing to the trained eye, with reasonable accuracy, the topography of the country over which the Eagle is flying. The observer studies the terrain below as the plane swings over it, and then marks a tiny cross on his map. Another brief, intensive scrutiny over the side of the plane and he is satisfied.

A brief penciled note passes forward to the pilot. "Got that one. Smoke over second ridge about east. Circle it."

The Eagle swings away on a new course with a throaty roar, and in the brief minutes that it takes to fly the distance the busy observer records in the triplicating notebook held on top of the map board the laconic, but complete message:

"9:17 a. m. Class A fire in heavy green timber on top of ridge, between fourth and fifth branches up from head of Salmon River, on south side about N. W. $\frac{1}{4}$ Section 9, 40-45, unsurveyed. Wind gentle from north. 9:21 a. m., heading about east toward larger smoke."

Now the Eagle is swooping down into a narrow canyon. Here a fire, like a black fairy ring circled with flame, has

spread over an acre or more of lightly timbered ground and is making slow progress in the fickle morning breeze. Immediately across the canyon, less than a mile away, still another smoke sends up its threatening plume.

Within the brief span of ten minutes the three fires are mapped and described and the Eagle swings back toward the isolated lookout house on the mountain, where is located the nearest telephone communication with the ground organization. Again, the observer works rapidly, for, although miles of rough mountain country intervene, it is but a matter of a few minutes for the powerful Eagle, now driven full speed, to cover the distance. Guarding carefully against the wind which clutches at each free fluttering corner of paper, the observer tears one copy of the penciled notes from his notebook and places it in the pocket of a stout little canvas bag loaded

with sand. To the top of the bag is attached a white streamer four inches wide and eight feet long, calculated to attract the man on the ground when the message is released.

After circling the lookout house, the Eagle draws away, turns, and races straight at the tiny structure as if to bowl it from the top of the narrow ridge. A sharp zoom upward and the white streamer trails gracefully to the rocks and the bag of sand bursts with a tiny puff of dust a few feet from the door of the lookout. The message is delivered. The Eagle has fulfilled its mission. The three fires, as yet unseen by the ground forces, have been reported while there is still a chance that human endurance and skill may be able to control them before they reach destructive proportions. Swinging about to make certain that the lookout man has received the message, the Eagle again picks up the course prearranged by pilot and observer and continues the day's work. Messages are put down at other points as occasion arises and after five consecutive hours of unfaltering flight, the Eagle glides to a smooth landing on the home field. Shortly afterwards the two other planes come in, having



The eagle worked in keen competition, and in co-operation with more than 200 alert lookout men posted on the most commanding mountain peaks in the region

scouted and reported fires in other sections of the forest.

Blackened with soot from the roaring exhaust, eyes and nerves weary from the long vigil, temporarily deafened by the roar and vibration of the motors, the pilots and observers find four or five hours enough for an average day's work. In emergency, two such flights may be made in a day. Each trip covers from three hundred to four hundred miles, and if the air is fairly clear four thousand or more square miles of untamed mountain forest may pass under the goggled eyes of observer and pilot.

There are days of a different sort for the Eagles when large fires escape control and the air is murky with smoke. A plane taxis over the ground in the gray haze of the morning, catches the wind, and is immediately lost to view. The pilot must hold his plane to less than a thousand feet above the trees to be of value. Above that, the ground is lost from view, all landmarks fail, and the flight is futile. And in a country where ground elevations change several thousand feet in a mile, it is an extremely hazardous undertaking to be hurled along, blindly, at a mile-a-minute pace.

There are many times under such circumstances when the Eagle must swing back, spiral down, down, down, gradually, gingerly, guardedly, until relation with the solid earth is again established. Then comes a search for a recognizable landmark. Perhaps it is the dim outline of a clearing, the yellow line that makes a road, or the blazing gleam of the sun on a lake or river, that gives the necessary reassurance, and the course is resumed. Under such circumstances the Eagle is really useful only if pilot and observer are intimately acquainted with the ground.

On a large fire, one man, usually a forest ranger, is in command. Under his direction there may be five or more crews of firefighters widely flung around the perimeter of the fire. One of the most serious problems and one of the greatest needs of the ranger directing the fire-fighting is immediate, reliable and adequate information concerning

the behavior of the various sections of the fire. This is difficult to get from so large and so extremely rough an area.

Above all obstacles, with the exception of smoke, the tireless Eagle courses the outline of such a fire in a few minutes. Keeping out of the heaviest smoke column, the plane may cross with ease over parts of the vast furnace where life on the ground would be impossible. Rough and bumpy air around a big fire, due to unequal heating, is the rule. Low, close flying sometimes to get detail. Occasionally a dizzy drop into a "hole" in the air, but always the sturdy Eagle's roar safely upward again with a few more lines laid down on the map or another brief note to guide the weary force below. A busy, tense half hour, perhaps an hour, and a message or a map is ready in its stout canvas bag to be

dropped at the main fire camp or at the ranger's office which is connected with the fire camp by telephone.

Several such fires may be scouted and more or less accurately mapped on a single trip. It would take days of wearying travel on



A "hot one" getting under way. After the air has become smoky from many large fires a clear vision and sharp photographs are no longer possible

the ground for a coordinating officer to grasp the action and behavior of these fires. True, mistakes are occasionally made from the air. Inaccurate locations may be given or maps that are too much in error sent down. The game is still young. There are many details yet to be worked out.

As in many other of its legitimate fields, the use of the airplane in forest fire control is spectacular. Therein lies a serious danger. The forester and the general public are both prone to expect of it the impossible, and to be discouraged and disappointed when the plane fails to deliver all that is expected. It must be kept in mind that the use of the plane in fire control is still but a promising experiment. Its limitations are narrow. It puts out no fires; it cannot supplant an effective ground force. It can be used to discover fires, to scout and map large fires, to transport men quickly, and to report on fires promptly. It is supplemental, an auxiliary, to ground forces. It will require time, money, skill, patience—lives, to bring out all of its possibilities.



Photograph by H. S. Lawton

Eucalyptus—That Most Individual and Temperamental of Trees—Adapts Itself to Its Place in the Landscape
In this Great Avenue, Its Lofty Characteristics of Dignity, Strength and Symmetrical Beauty Are Most Apparent

Trees of Southern California

Impressions of a Summer Wanderer from a Great City of Treeless Canyons

By MARY J. J. WRINN



EVEN the blasé traveler, to whom crossing the continent is an old story, lays aside his magazine to glimpse again the grotesque yucca palms that suddenly rise in weird groups out of the Mohave. Their angular spines, tipped with sharp, dusty leaves, gesticulate in diabolical delight at the wondering and inexperienced tourist on the California Limited. A shiver ran through my boiling blood when I saw them. They seemed

like twisted old mediums on intimate terms with the supernatural spirits that haunt the yellow sands. The seasoned traveler in lower 8 told me that, with all their eerie appearance, they possess an economic value in their small, savory fruit, from the seeds of which the natives grind a flour.

The personality of these strange dwellers of the desert haunted me. Though I did not know it then, I came to realize that these fantastic yucca palms were the first of a series of distinctive personalities that I was to meet in the land of fruit and flowers. Southern California's trees, with their peculiar mountain background—abrupt white sand peaks sharply cutting into startling black sand peaks, both bare of vegetation—give to it a personality that makes it quite unlike any other place in the world.

To me Los Angeles seemed on first acquaintance like a city in a painted picture book, with its bright Spanish bungalows overrun with gay ramblers and magenta Bougainvillea. Even the ground seemed shining and new; the atmosphere, young—very young. It was unreal, and I, mere tourist that

I was, looked with pleased eyes upon unreality, until I found companionship in the trees.

They sounded the human note. They became my first friends. I learned to love best the eucalyptus, that tallest of all trees. Even from the window of the California Limited those about San Bernardino struck me as experienced travelers with moods and strange contacts to make them interesting and sympathetic. They are the most individual and temperamental, if not the most beautiful, of trees. There is the grace of the weeping willow in the eucalyptus, the dignity of our New England elm, the strength of the oak, the deep religious air of the majestic sequoia. Besides, there is an unconventional impetuosity that brings the eucalyptus closer than any of them to the human heart.

You feel this, when you see great sheets of bark hanging from their trunks and great patches of smooth white tissue gleam from beneath. Twice a year the tree thus frees itself of its outer bark. Unkept then and disheveled, it stands in half naked freedom, in no hurry at all to tidy itself.

There are times when it catches the mood of the wind, and as its great arms tumble wantonly about, it laughs in high glee. Again, it seems jaded and weary, with no words.

An avenue of eucalyptus trees is inspirational and comforting at the same time. Tolerance and sympathy seem to drip from their high-flung boughs. You feel that they have forgotten old tales

that we shall never know; that they remember the romance of the great Australian forests from which their race has come. Perhaps that is why they are so tender to the frosted green shoots at their feet. Perhaps it is the memory of that far-off romance that touches the green of their foliage into a hundred varying shades; that makes the flowering tree flash forth its most gorgeous clumps of scarlet blossoms.



Fantastic Yucca Palms on the Desert Lift Their Arms Like Twisted Old Mediums on Intimate Terms with the Supernatural Spirits that Haunt the Yellow Sands



Exposed on a Hillside, the Eucalyptus Exhibits Its Trait of Unconventional Impetuosity, When It Catches the Mood of the Winds—Its Great Arms Toss in Abandonment and Its White Tissue Gleams Beneath Ragged Draperies of Bark

Is it a racial trait that makes its leaves hang with edges vertical to keep their surfaces from the full glare of the sun, or did the spirit of its adopted California teach it that art?

The eucalyptus has the charm of adaptability. While its own personality is never lost, it takes its place in the land-

scape as though born to whatever service it performs. Long rows of them serve as windbreaks for the orange trees. There is something of dignified grandeur in the way they face the blast to shield the little fruit bearers from harm. Small as bushes, trim, well groomed, the orange trees stand in their orderly rows. They look as though they had just stepped out of a manicuring parlor, polished and netted, not a hair out of place.

Nothing is more significant of the efficiency and prosperity of California than its sweep of orchards. I remember what an impression they made upon me one July afternoon as I drove into La Habra from the south. Hills of polished green bushes laden with their balls of gold drifted away to the northward. Above were the La Habra oil derricks, awkwardly self-conscious of their newly discovered power. In the distance loomed the less self-assured Santa Fe wells. . . . More miles and miles of orange groves. . . . Then we dipped lower between deep-shadowed walnut groves mellowed with years. On the left rose the Whittier derricks, while beyond, to the right, the parched Sierra Madre lay like great sand-colored meal sacks heaped in irregular, overlapping piles.

A light wind blew. All at once, both sides of the highway became billowy with the frosted-green leaf of olive trees. A sifting of sunlight through their loosely spread slim branches made quaint patterns below, like lace that has been put away and forgotten for a generation. The olive groves gave place to lemon orchards; they, to vineyards—the grape plant growing in well-trimmed bushes, not rambling over arbors, as Easterners know it. Again the gleam of the orange flashes by for miles and miles, and then—a ragged line of the protecting eucalyptus.

You soon learn that the eucalyptus is not the only tree that is pressed into the service of the citrus groves. When you come upon an impenetrable line of Monterey cypresses stiffly fringing an orchard, you wonder that protection should ever be sought elsewhere. The dense, dark foliage of the conifer sweeps to the ground with a warning, "Thou shalt not pass!" Perhaps it gives

itself thus ardently to the business in hand to quiet its dreams of the wild, free life it knew before man clipped its battered branches and brought it under cultivation. Perhaps when it is most admired, in an ornamental hedge, it feels a tinge of envy for the last of its race on the sea-beaten promon-

tories about Monterey. Who can say that beneath its show of calm content it does not sometimes long for the mad salt spray and the roaring beat of the ceaseless surge and the buffeting blasts of its native lone, high-flung bluffs? Or is it enough that, of all trees, it is the chosen of him who would withdraw from the haunts of men? It seems content, indeed, to hold rare intimacy with the recluse. You never guess the comfort it can bestow until one day, after a long stretch of blistering pavement, you come upon a cypress-bordered path. Then you feel the spell of its inscrutable repose.

Some trees, less shy, invite you openly to share companionship. Graceful pepper trees challenge your admiration at every turn. Their light, feathery leaves look like chiffon blowing in the breezes. They blow with an abandon that suggests the free shores of the Mediterranean, from which they came. At once, they will flaunt their buds, their blossoms, and their aromatic drupes. The small boy next door will show you that the leaf is alive. He throws it on to water, and, true enough, the oily fluid with which it is filled makes it jump as though bewitched. I was amazed once to hear a California veteran say, "I wouldn't have a pepper tree on my property!" For with all their bewitching ways they are not tidy trees. They are like the alluring débutante in lace and satin, who leaves the clothes she has just stepped out of for any one who will to pick up and put away. But what of that? Without them, a debonair grace and flippant buoyancy would vanish from the streets of southern California. You would not part with them.

Nor would you part with the tall fan palms that will not discard their dusty skirts, nor the ribbed leaved date palms for all their stiffness. They have a well-marked place on the burnt-up lawns, along very old boulevards and on very young streets. They, with their friends, the slender bamboos, are ever ready with their whisperings of tangled jungles. My first intimate contact with the palms harks back to an evening in Los Angeles, when, in their shadow, I looked from the palisade above Santa Monica upon the Pacific and a beach of white tents and camp fires and happy bronzed groups about them, and in the distance, Venice, with its gay-lighted, restless outlines of Ferris wheel and roller coaster. But the palms above me seemed unmindful and undisturbed.



Photograph by Thew, Inc.

The Inscrutable Cypress—a Sentinel Standing Alone in Beauty—Has Clothed Itself with Dense, Dark Foliage Touching the Ground. Who Knows But that Under this Calm Content Lies a Longing for the Mad Salt Spray and Pounding Surf of Its Native Cliffs?

You cannot pass many times through the streets of Los Angeles without coming to know the lovely South American Jacaranda, with its wistaria-like purple panicles and its fernlike foliage, and the black acacia with its trim rubbery



Here the Cypress Flings Its Branches Free, Defying the Blasts on the Seabeaten Heights of Monterey



Quiet and Peace Reign in the Garden of the Santa Barbara Mission, Still Used by the Followers of Saint Francis



Fringing an Orchard, the Giant Cypress Here Helps to Protect an Extensive Citrus Grove

contour. Both are as common on the streets of Los Angeles as the maple and the elm in New England. The flaring cream cups of the magnolia lend festive air to many a street and avenue. The evergreen camphor tree from across the Pacific, in appearance not unlike the black acacia, stands as tidy as a New England spinster and as small as a Japanese lady.

The neat imports from the Orient harmonize well with the little homes of a picture-book city like Los Angeles.

There the tree-lined streets whisper an interesting story to the stranger from the East, and he, catching its spirit, feels no longer strange. These trees, brought together from Australia, from South America, from Asia and the Mediterranean shores, thrive with the Occidental natives on a common soil that once nourished only sage brush and yucca. They have found the secret of a cosmopolitan harmony that we sectionalist mortals have yet to learn.

In the wide spaces beyond the old green Spanish bells that



In the California Live Oak Dwells a Current of Indomitable Courage, and Pride in a Heritage of Strength Drawn from Its Native Soil



Cousin of the Blue-gum, the White Eucalyptus Broods Over the Plain, Remembering the Romance of the Great Australian Forests from Which It Sprang



The Beautiful Contours of the Acacia are as Common on the Streets of Los Angeles as are the Native Maple and Elm in New England

mark El Camino Real at regular intervals, dwells the California live oak. "The only native tree of California," shouts your guide. Realizing that you are in a land where everything is "the only something," you are not perfectly credulous, but the suggestion fits well with your impression of the trees. They make you think of toil-worn peasants with crooked backs and knotted knuckles. Twisted and bent, they stand in groups as though met to gossip in their native jargon. You fancy a long history of their fierce struggle against heat and thirst before man's art lent assistance. You imagine that a current of indomitable courage and perseverance flows in the sap of them and you sense their pride in a heritage of great strength.

Trees,
Soul-stirring trees
Lacy loveliness of peppers,
Pallid limbs of sycamores,
Groves of olives overlaid with gray-green mists,
Rags of witches caught in rows of eucalypts.

Many trees
For my many moods.
All kind to me,
Soothing my weariness,
Pitying my pain,
Showing me God!

—ANNE HAMILTON

When the veil of mulberry light drops away from the Sierras, leaving a mysterious trail of twilight, the twisted old oaks look for all the world like gnomes come out of their hiding places for the night's frolic. Farther north, you meet them again, gnomish still, but taller and less gnarled perhaps, as though a kindly hand had relieved a little of their early struggle. They rear their heads proudly. As you lift your own to the cooling shade that they graciously bestow, you notice on their hardy limbs thick green bunches of mistletoe. The useless parasite is wringing its sustenance from its patient host, sapping its strength and draining its life blood drop by drop. In time it may even kill the tree. You would select a nobler



Photograph by H. S. Lawton

In this Friendly Land, the Palm-lined Streets and Roadways Extend a Charming Welcome to the Traveler. The Tall Fan Palms, with Their Dusty Skirts, and the Lower, Rib-leaved Date Palms are Characteristic of the Landscape Everywhere



Photograph by H. S. Lawton

A Light Wind Blew, and Suddenly Both Sides of the Highway Became Billowy with the Frosted-green Leaf of the Olive Trees—the Sunlight Weaving Shadow Lace Patterns on the Ground Below

end for this splendid old inhabitant of the wide spaces.

Thus you are reflecting when pile upon pile of unpainted wooden frames flash by. They are apricot frames, as typical of southern California industry as are lobster pots on the Maine coast or Indian looms in New Mexico. Orchards of little slender apricot trees bend their fruit-weighted branches until props have to be set beneath them to keep them from breaking. In August, when the fruit is ripe, picking begins and soon the frames, covered with halved fruit, are spread out in the sunlight. The brown, open spaces become sheets of fiery gold. Looking upon the brilliant pageant, you forget for the moment your gnarled old friends, the live oaks.

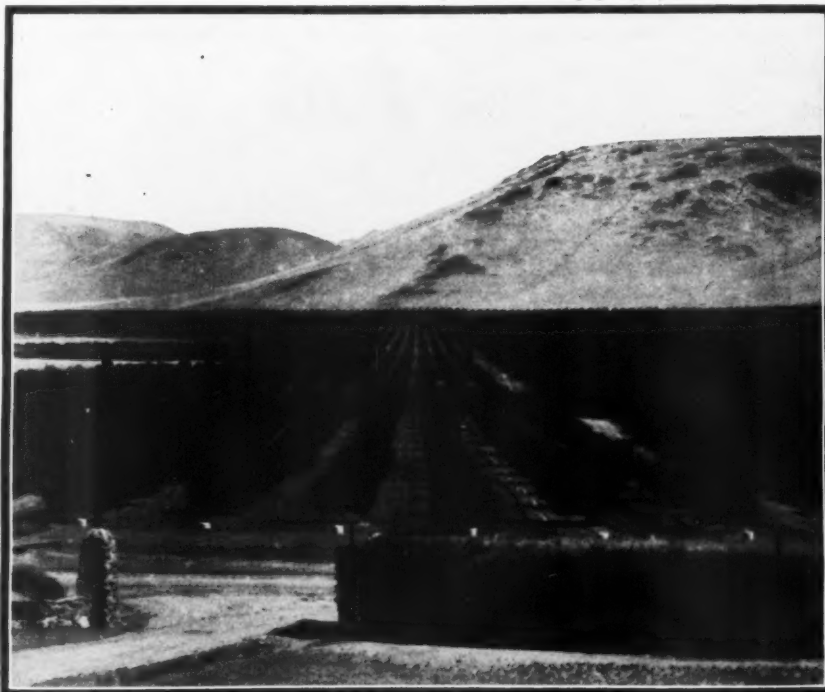
Soon, however, you find beauty again in duller tones. Going south toward San Diego on the King's Highway, which follows the trail taken by the early Franciscan fathers from mission to mission, after you've passed by hundreds of acres of sugar beets, and beans, and grape vines; when you've skirted the coast and the blue waters of the Pacific for miles, and you've left Cardiff behind, you suddenly swing to the left on a gradual slope. As you ascend, your attention is arrested by a

group of ragged conifers huddled on a narrow bluff between the roadway and the ocean. Like a handful of Junipero's own band, ascetic and defiant, they face the open sea. You fancy Redskins or the Mexicans of that earlier time gathering from the scraggly arms the thick seed that offered them a bare subsistence. The trees are the Torrey pines, named for John Torrey, the New York botanist, and outside California you will find them only in Florida, China, and Japan. The coast trip to San Diego is well worth taking if only for an acquaintance with the Torrey pines.

Indeed, all along El Camino Real you cannot but respond to the influence of the trees. What a cruel road it would be, stripped of their occasional friendly shade! There is a strange harshness, a barrenness even, where you find none.

At the top of a hill above Santa Barbara, striking and bold of outline, stands the fashionable Samarkand. With hard, white eyes it stares out upon its glittering estate. You look in vain for a touch of softness. Severe white pillars there are edging a shallow pool that sharply reflects their

(Continued on page 128)



Photograph by Thew, Inc.

Trim, Well-groomed, the Orange Trees Stand in Their Orderly Rows—Hills of Polished Green Bushes, Laden with Golden Balls, Drifting Away to the North. And Beyond, the Parched Hills Lay in Irregular, Overlapping Piles

Winter Sports in Sweden

By WILLIAM THOMPSON, F. R. G. S.



SKI-RUNNING is not a sport that thrives in narrow boundaries. It demands space. It is akin in this respect to flying, with which, however strange it may seem, it possesses many features in common. If one realizes this, one will also realize that real skiing country is not to be found in narrow mountain valleys with steep, inaccessible precipices, as very often characterizes the topography in many of the resorts of Europe.

In many of the provinces of Sweden one finds ideal skiing country, where one can stretch one's limbs to the full and fill one's lungs with exhilarating pine-scented air. This is especially true in the Province of Jamtland in northern

Sweden, where the winter visitor may enjoy some of the best ski-running routes on the Continent. The most popular of these resorts in Jamtland are Are, Storlien, Valadalen, Halland, Bispgarden and Ostersund.

While nearly all kinds of winter sports have been practiced in Sweden for several decades, it can hardly be said that Sweden possessed a winter sport center until Are was established fifteen years ago. The natural scenery is most favorable there, and the resort has been furnished with facilities which attract sportsmen not only from Sweden, but from the Continent as well. In some respects the landscape is reminiscent of the best known resorts of Switzerland.



The thrill that comes only to the devotee of the bobsleigh. An enchanting dash through the icy air and a sudden spill on one of the hills near Are, the great winter sport center in Sweden



All lined up for an ice-skate sail, one of the most thrilling winter sports in Sweden, just below the Stockholm Skating-Sailing Club at Saltsjobaden

High and rugged mountains in the vicinity invite mountain climbing, and the slopes are equally suitable for sleigh or bobsled runs. There is a mountain railway which conveys visitors from the bottom of the valley to a place 600 feet higher up, suitable as a starting point for ski excursions and sleigh runs.

What distinguishes the Are district, and for that matter the whole of western Jamtland, from the Swiss landscape, is its easy accessibility for making long excursions on skis. The Jamtland mountains are of a more rounded type than the Swiss, consisting for a large part of extensive plateaus with easy slopes. Another advantage for the ski enthusiast is that

comparative ease. The roads and paths are maintained during the winter and cleared after heavy snowfalls, so that the novice can make his way without trouble or the aid of a guide. These natural conditions, combined with the excellent hotel facilities, make Are the ideal place for the lover of the magnificent sport, whether one is a professional or a beginner.

It is not only to the devotee of skiing that Are appeals. The exceptionally well-constructed and fast bobsled run is perhaps an even greater attraction to the average visitor. It is three-quarters of a mile in length, beginning at the upper station of the mountain railway and winding down to the hotels. Some of the curves are fairly sharp, which makes the run exciting and even sensational in parts. Anyone who has had an opportunity to make the dizzy descent on the Are bobsled track hastens to board the mountain railway for the top, because the first run inevitably cries for more.

There is no need, however, of crowding into a "bob" in order to enjoy the swift, enchanting trip between snow and ice walls which sends one's heart into one's mouth. Almost the same thrills can be produced by coasting down on ordinary sleds of the modern variety. The popularity of sledding at Are is very great and these contrivances on steel runners are handled with amazing skill by many of the performers.

There are opportunities here for



Playing the old royal Scottish game of curling, on the courts near Stockholm, Sweden

the visitor from abroad to become acquainted with the original inhabitants of these districts, the Nomadic Laps. Several Lap families with their large herds of reindeer camp every winter in the neighborhood, and a trip in an "akja," a boatlike sled used by the Laps, or on skis hitched to a reindeer, does not belong to the most common experiences or pastimes, either in Europe or in America.

The winter sporting life at Are begins in November and continues until the end of March. In order to stimulate interest in the various sports a special week has been fixed for each, during which contests are held. Thus there is a skiing week, a sleighing week, bobsledding week, and a curling week. Participation in the championship contests and the competition for the large and valuable prizes offered is very keen and energetic, during the week assigned to each sport.

Storlien, on the other hand, is devoted entirely to ski-running, and is the point of departure for many interesting mountain trips, with the advantage of being able to spend the night in one of the cottages that have been put up at convenient spots along the route.

From the beginning of February to the end of March, Jamtland is the ski-runner's paradise. The snow is then sufficiently hard-packed or crusted over to enable one to move about in all directions without difficulty. At the beginning of February there are eleven hours of daylight, and by the end of March the day has lengthened to fourteen hours. During these two months there is very seldom a thaw, and, if there is, it hardly ever lasts more than one day and never more than two.

For less experienced and less adventurous sportsmen, especially ski-runners, there are splendid opportunities for winter sports practically everywhere in Sweden. Dalecarlia and some parts of Varmaland are not far removed from Jamtland in this respect. The finest winter resorts in Dalecarlia are situated around the beautiful Lake Siljan. Besides splendid skiing country, of a comparatively easy character, there are opportunities for skating, tobogganing, curling and torchlight sleighing parties.

A sporting event of much interest in Dalecarlia is the "Wasa-



A "close-up" of Mr. Nils Oleinikoff, winner of the first prize in the skate-sailing race

loppet," or Wasa Race, instituted to celebrate an important episode in Swedish history. The "Wasaloppet," which is run without handicap, takes place over a distance of ninety kilometers and is not tracked or marked out. The start is from Salem, a small village on the Norwegian frontier, and the goal is in the neighborhood of Mora. For the last few years 150 or more enthusiasts have started in the event, and the times that have been made in this endurance race are exceptionally good. In 1926 the winner had a time of six hours, three minutes, and fifty-five seconds, and the second and third men followed seven minutes later. It is well



In the ski-runner's paradise, near Are, Sweden, just before the start of a long, cross-country run which puts to test the endurance and skill of the enthusiast

worth a journey to Dalecarlia to witness this event. The sports season in Dalecarlia and Varmland begins and ends a week or two earlier than in Jamtland.

If the winter is normal it is not necessary to make a journey to Jamtland or Varmland or Dalecarlia in order to enjoy the full benefit of winter sports in a suitable terrain. Under normal winter conditions the most favorable opportunities for skiing, ice-yachting, skating, and bobsledding are to be had in and around Saltsjobaden and Djursholm, suburbs of Stockholm. Skating is very popular here, and when the many fjords are frozen over with bluish-green glassy ice, skate-sailing and ice-yachting are in order. There is a floating ice-yacht clubhouse lying in one of the bays off Djursholm, from which the races for the many regattas are started, and around which enthusiastic crowds rally during the ice-sports season.

The re-establishment of the Olympic Games gave some of the leading sportsmen in Sweden the idea to

hold, during one week of the Northern winter, a series of exhibitions to give publicity to the many different sports that are practiced in that country. Consequently, in February, 1901, Sweden aroused the attention of the sports world by holding the first Northern Games at Stockholm. The success of this first meet was a good omen for the continuation of an athletic winter sports event at stated periods. These plans and hopes have materialized in the most gratifying manner, as each festival has marked a decided advance in the development of winter sporting life in Europe.

The Northern Games are held every fourth year, and now constitute a traditional meeting of the foremost exponents of winter sports in the northern countries. Players and sportsmen of other nations are by no means excluded. Skating champions from Great Britain, Germany and Austria compete on these occasions for the championship of Europe and of the world.

In order to afford visitors from abroad an opportunity to enjoy something with a typical Northern aspect, the program of the Games includes a trip through the wonderful Stock-

holm archipelago on an ice-breaking steamer and also a torch-light drive in sleighs drawn by horses bedecked with nets and bells.

In the ski races the battle is always keen between Swedes, Norwegians and Finns, and the time made at these matches testify to the severity of the contest. At the 1926 Northern Games the winner of the thirty kilometer race had a time of two hours and eleven minutes. In the sixty kilometer race the winner had a time of four hours and forty-four minutes. One of the most interesting races of the Games is the so-called "budkavel" run, which has reference to the ancient

mode of dispatching the king's messengers to distant communities in winter. This distance of two hundred kilometers as the crow flies is divided into three relays. Each team enters one or two men on each relay and the team whose best man on each relay has the shortest time for the total distance is victorious. Both the starting place and the goal, as well as the relay stations,



The ultra-modern in winter sports—the woman drives, but she rides on skis, and her steed is a high-power motor cycle!

are kept absolutely secret up to the time of the start. This match, therefore, is a trying cross-country race which puts to the test the ability of the runners to choose the correct and most suitable route.

The long-distance race, the great equestrian event of the Games, tries the mettle of horse and rider. The distance is usually about seventy kilometers. Automobiles and motor-cycles have also become acclimatized in the northern lands and have won an indisputable place among the winter sports. Competitions are held both in long distance and speed races.

Curling has in a brief space of time advanced to a very prominent position. The game is fairly old in Sweden, inasmuch as the first curling club was formed about the middle of the last century, but it was only through the Northern Games that it became more generally known to the public.

As a land of winter sports, Sweden is now recognized in international circles as one of the most important, and this has been acknowledged by those who think winter consists of a more or less mobile social life at winter resorts.



Beautiful beyond description are the plant forms within the area of heavy rainfall in the Luquillo National Forest

Luquillo—Our Tropical National Forest

By WILLIAM P. KRAMER



EVERY Thursday a luxurious steamer leaves behind the noise and clamor of New York harbor and heads in a southeasterly direction, en route to Porto Rico, the island gem of the south Atlantic, on which is located our only tropical National Forest. Situated nearly fifteen hundred miles from New York, this island, formerly a possession of Spain, has since 1898 been an integral part of the United States.

Early Monday morning as the ship approaches the island a low-lying, cloud-like mass may be dimly seen upon the horizon. Slowly it takes more definite form, and soon distinct outlines of mountains, valleys and coastline stretch before one's eyes. Standing out most prominently is the odd-shaped peak "El Yunque," the most noted mountain of the Luquillo National Forest.

One lands at the port of San Juan amid the babble and confusion of a foreign tongue, and if desirous of proceeding directly to the forest, takes bus or motor car. It is a journey of thirty-five miles over a road which winds through citrus groves, fields of pine-apples and sugar cane, and quaint little

pueblos. The Atlantic Ocean stretches to the left, while to the right the mountains of the Sierra de Luquillo rise abruptly from the low-lying coastal plain to an altitude of 3,500 feet.

When La Catalina, the last coffee estate of the upper foothills, is left behind, and we are safely treading the El Yunque trail, built by a paternal government, we experience a feeling of exhilaration and look forward with keen anticipation to the sights which are to meet us as we climb. Now and then one catches glimpses of small green parrots flitting in and out between orchid-covered trees. Large tabonucos (*Dacryodes excelsa*) and laurel sabino (*Magnolia splendens*) tower above the smaller palms and luxuriant fern growth. Here and there fine specimens of guaraguo (*Guarea trichilioides*) and ausubo (*Mimusops nitida*), both of which are becoming scarce and valuable throughout the island, may be observed. As we approach the end of our climb, above 2,500 feet elevation, we pass into a very interesting dwarf forest, where the trees are scarcely twenty-five feet high and occur in dense stands, with interlaced branches covered with water-laden moss. The low, gnarled and

stunted tree growth can only be explained as being due to the strong winds, storms and hurricanes which sweep continuously over these ridges.

When we finally reach the summit of "El Yunque," we discover that our trip has been really worth while, for the view now spreading before us is indescribably beautiful. We can look down on San Juan, a tiny speck in the distance, and trace our route through the towns of Rio Piedras, Carolina, Canovanas, Rio Grande and Mameyes. We look down upon the forest-covered slopes, and over the adjoining foothills to the broad cultivated coastal plains, with the great Atlantic stretching before us to the north, and the sparkling Caribbean to the south.

The Luquillo National Forest was created in 1903 by President Roosevelt. By his proclamation all the lands formerly belonging to the Spanish Crown, and

lying within the Sierra de Luquillo range, were reserved as a National Forest. Little interest was manifested in this tropical forest until 1917, when a Forest Examiner was sent to the island in charge of this district. Since that year effective

protection against trespass and unauthorized uses has been maintained and a comprehensive program of development has been worked out. To date thirty-four miles of foot and bridle trails have been constructed, and when the entire

system is completed every part of the forest will be accessible. A good road from Mameyes to the boundary of the forest is now being constructed, and another year will see tourists and interested sight-seers motoring to the forest and viewing the delightful vistas that the region affords.

The Luquillo forest, nearly 12,000 acres in area, extends along the crests and upper slopes of the Luquillo range, and contains the roughest and most inaccessible part of the eastern end of the island. It embodies the largest remaining portion of virgin forest land of the pre-Columbian period to be found in Porto Rico. It is entirely of a tropical hardwood aspect, with a large



A bit of perfect road in our only Tropical National Forest—Royal Palms grace the way to Luquillo, on the Island of Porto Rico

variety of tree species. Some of the most important and more valuable timber trees of the island here attain splendid proportions and would yield considerable returns if properly exploited. However, because of the prevailing heavy rain-

fall, averaging more than 135 inches each year, the exceedingly rugged topography and the valuable agricultural lands surrounding it, this forest finds its chief importance as a protection forest, notwithstanding that it contains in the aggregate a large amount of commercially valuable timber. The forest affords protection to the many streams that have their sources within its boundaries and is of inestimable value in the prevention of destructive soil-erosion. If, for any purpose whatever, this protective forest cover were removed, the thin soil covering would eventually wash away, leaving only the bare rocks. Thereafter, whenever a rain occurred the streams would rush through the lower valleys and coastal plains with great violence and in many cases would damage or completely destroy the valuable agricultural land. It can, therefore, be seen that our tropical National Forest is not of commercial value solely, but renders its greatest benefit to the people of Porto Rico through its value as a forest cover exerting direct influence upon soil and streamflow.



Here at an elevation of 2,000 feet is found, in luxuriant growth, the mountain palm, known technically as *Acrista Monticola*

Today the National Forests of the continent are drawing people in ever-increasing numbers as recreational resorts and vacation camps. Even if this phase only of the Luquillo National Forest were considered, its presence in the island would be fully justified, for there are no mountain parks or public recreational grounds to be found. If proper provisions are made to carry through the contemplated development and maintenance, the public will have a unique and highly interesting resort located comfortably near the equator, abounding in tropical beauty, and open at all times of the year to those who desire to enter and enjoy it. Good automobile roads, alluring tropical trails, various recreational areas developed and maintained in harmony with the natural conditions of the island, will do much to make the Luquillo one of the most popular forest areas in the entire Federal system. Certainly no other area of similar size could offer to the public the beautiful streams, the wooded slopes, the matchless views, the interesting plant life to be found in our only tropical National Forest, Luquillo.



Looking east from one of the lower ridges over the valuable agricultural land which is protected by the forests on the slopes. The low-lying fields are planted to sugar cane

Through the Field Glass

Timely Comment on Important Developments in Forestry

By SHIRLEY W. ALLEN

A RECENT authority writing in a conservation magazine on the Mississippi flood question, skillfully invents the phrase "Washington science." This term, he explains, is the process by which you determine whether or not forests influence floods by adopting the view of the Bureau which employs you. May there not be an "Engineers' science" as exemplified in the report of the Mississippi River Commission (Special Report, dated November 28, 1927). Here there are set up three straw men which the commission demolishes one by one, as follows: (1) "That reforestation would not be efficacious." To prove this to its own satisfaction, the Commission reviews a study by the Geological Survey of an area in Minnesota where rainfall and run-off have been measured since 1884. Convincing records in this area, which has passed from virgin forest to farms and back to scrub forest growth, are compared with a near-by area of farmed lands on which two-year studies were made. Brushing aside "possible geological and soil differences," the conclusion is reached that farmed lands (remember that no one has *advocated* reforestation of cultivated farm lands) reduce run-off more than cut-over lands, and that the latter have no greater run-off than virgin forests. The first man of straw being thus demolished and the victory clinched by quotations from the late Dr. Willis L. Moore, the scarecrow is revived under (2) "That reforestation for flood control would be economically unsound." Here the brain-exhausting observation is made that even if reforestation could be shown to be beneficial it would have to be done on a large scale, and that "turning productive farm lands on such a large scale back to forests would be economically unsound." One may search in vain for a recommendation from anyone that productive farm lands be reforested, and yet the commission must set up this plan and knock it down in the heat of battle.

Reading on we meet another proposition: (3) "That the remedy sought in reforestation would be too slow in effect," and this from a commission which in fifty years has built up no research data on the Mississippi flood situation. The Commission members here show themselves to be completely uninformed. Contrary to their statement that 50 to 100 years will be required for reforestation "to arrive at its full possible benefit, if benefit there be," ten years would show results, and at the end of 50 years the project would have paid its way and yielded a profit aside from "benefit, if benefit there be." But with a final flourish at the third straw man, which they call "Reforestation is necessarily slow," they swing into a grand crescendo of conclusion that they are justified in rejecting reforestation for any service which it may render in flood control.

The Army Engineers, in their report of December 1, 1927, and transmitted to Congress by President Coolidge, with his approval on December 8, dispose of reforestation courteously but firmly. This report, however, falls into grievous errors. First, it assumes that water storage is the principal function for which forests are urged. Further, it considers this service as confined to proposed National Forests alone, and says that this would hold back a negligible amount of water. As a matter of fact, the recommendations urge the better management and extension of forests on idle farm lands, and on State and municipal holdings, vastly greater in area than all National Forest purchases recommended. Superficial study, therefore, causes the Army engineers to misinform Congress and the public and disregard the possibility of storing from five to six inches of water which would otherwise lengthen the flood stage just that much.

Passing on to the question of erosion, the Engineers' report admits the value of forests in "checking soil erosion on hillsides, and in preventing thereby the choking of local streams by the silt washed down from eroding gullies." But it goes on to say that the silt burden of the Mississippi comes not from its lesser tributaries which flow between hillsides, "but is the balance remaining of the load which has been picked up and deposited many times over by the river in its course down through the alluvial soil of the river valleys." Then comes this amazing statement:

"The checking of hillside erosion by forest cover in localities particularly subject to this loss will, in the long run, retard the extension of the river valley into the Gulf, but the effect thereon of any reforestation or forest development within the bounds of practical accomplishment would apparently be insensible so far as present generations are concerned."

The question immediately arises as to how hillside soil could reach the Gulf without becoming a part of the Mississippi River burden. Farm and hillside soil is a part of the volume of every Mississippi flood, and no doubt a much bigger part than anyone knows. As far as the Army Engineers are concerned, forests are a step in the right direction for flood control, but one which should not be taken.

Reforestation as an aid in flood control has not yet been considered in Congress, but the mass of testimony before the House Committee on Flood Control may result in some provision for attacking the problem on hillsides as well as along the banks of the main stream.

Meanwhile, the campaign for forests for flood control purposes, with or without aid from flood control funds, must go on, and such forests as we have will faithfully and silently continue to help lower the flood stages.



Not a conventional city park, but the foundation and extension of a great recreational domain as nearly approaching its original forested state as possible, is what is being built in the Cook County Forest Preserve in Illinois

Suburban Forest Preserves

By FORREST CRISSEY

THE forest ranger, as he is depicted in the films and in the pages of current periodicals and popular fiction, is a picturesque figure, unfailingly alluring to the eyes of Young America. This official protector of our National Forests has become a living embodiment of the principle of conservation of natural resources.

To citizens and tourists of the western portion of the United States, the forest ranger is as symbolic of fundamental Americanism as is the Statue of Liberty, in the New York Harbor, to our citizens returning from foreign shores. But this mounted guardian of our forests has so completely filled the eye of an admiring public that his less decorative compatriot, the forester of preserves in the more thickly settled areas, is seldom in the picture.

This neglected species of forester is entitled to a far more generous appreciation than he commonly receives. He is not as romantic a figure as the ranger of the Rockies, but his usefulness as a protector and builder of natural resources makes him a peer of the vigilant rider of the remote forests. This is true because of the fact that, as President Coolidge

says, the greatest of all natural resources possessed by any country is the human beings which it contains. Mountains, lakes, rivers and forests and their birds, animals and fishes are worth only what they can contribute to human comfort, pleasure and development.

Measured by what they accomplish for nature-hungry human beings, the forest preserves accessible to the people of the large cities of the middle west and the east are of a value and importance out of all proportion to their size and scenic grandeur.

No one can become even casually familiar with the forest preserve system of Cook County, Illinois, in which Chicago is located, without acquiring the conviction that this system does about as much to conserve this nation's most precious natural resource—the human beings which compose it—as do the spectacular forests of the far west. The forest preserves of Cook County contain 30,500 acres—every acre in active use by the people. It is impossible to leave the city of Chicago by motor or any of the paved highways without touching or passing through a tract of public forest preserves.



This combination dam and ford on the Des Plaines River conspires to serve a multiple purpose. It backs the water from six to eight miles, furnishing swimming, fishing, canoeing and skating. There are four dams of this type on the Preserve

The most remote forest preserve boundary line is not more than thirty miles from Chicago's city hall, and the greater portion of preserves in this system are much closer than that to the city. Easy accessibility by a vast population is the keynote to the immense usefulness of this forest preserve system. Last year, according to Chief Forester Ransom Kennicott, there were more than ten million admissions to the preserves. In giving this figure he added:

"And we have less vandalism today than back at the beginning, when the system comprised only ten thousand acres. This is because the people have been educated up to a decent and appreciative use of their forest-preserve privileges. The finest and most efficient police force which the preserve system has is not down on its pay roll, but consists of the men and women, the boys and girls, who make habitual use of the preserve and have come to appreciate the fact that it belongs to them and that they have a responsibility to see that it is not misused or mutilated."

The extent to which this great rural playground is enjoyed by the

people of Chicago is suggested by the fact that one of the four golf courses in the preserve system last season yielded an income of more than \$40,000 in fees, the charges being one dollar a player on Saturdays and Sundays and fifty cents on other days.

The inference should not be drawn from this statement that a development of income-producing attractions is an objective in the administration of this great recreational domain; on the contrary, golf courses are provided only where and when the public demand for them is insistent. The reason for this administrative attitude is that the fundamental purpose inevitably underlying any forest-preserve system is that of keeping wooded tracts as nearly in a state of nature as is consistent with full and free enjoyment of their beauties.

How successfully the administration of this forest preserve has

resisted the pressure to make the preserve domain into a rough imitation of a conventional city park is indicated by the fact that less than 2,000 of its 30,500 acres are given over to golf courses, tennis courts, baseball grounds and



Camp Reinberg is in Deer Grove, in the Preserve, in the northwest corner of the county. Here, in ideal surroundings, 5,000 poor children of Chicago are given a two-weeks' outing in the woods each summer

facilities for sports. A great area remains in forest. Chief Forester Kennicott measures up to the full traditional stature of the forester tribe. He knows his timber from the ground up. One of his most important qualifications is that all of his preparatory experience as a nurseryman, a grower of flowers, a tree surgeon and a landscape engineer was had close to Chicago. He is familiar with local climatic, soil and human conditions. This is a major asset in the equipment of any man given the responsibility of planning and developing a forest preserve to serve the people of a large city or a thickly inhabited area.

"My grandfather," declares Mr. Kennicott, "came here in 1834 and settled in a neighborhood sixteen miles out of Chicago, in a locality which has ever since been known as 'The Grove.' Having come from the East, where his eyes feasted on beautifully wooded landscapes, the scenery about Chicago looked rather flat and bare to him. He shrewdly decided that as Chicago and the country about it increased in population and wealth there was bound to be a good demand for trees and shrubbery, so he started in the nursery business and, as a consequence, his son and one of his grandsons became nurserymen by inheritance.

"Ever since I assumed the responsibilities of my present position I have secretly cherished the ambition to restore the lands in the forest preserve to a state as nearly like that of the period of my grandfather's first experiences here as possible. That picture, as I received it from my grandfather, is the ideal constantly in my mind's eye, and if I am able to

realize it, even approximately, I think that realization will be a real service to the people of Chicago.

"The logic of this ideal must be apparent to the Cook County commissioners who administer this great recreational domain, for the preservation of the forests in the preserve in a state and an appearance as nearly resembling their original condition back in the thirties is constantly in their minds and definitely embodied in their official plans and acts. For example, the policy of keeping all public 'accommodations,' such as parking spaces, toilets, drinking fountains, refectories, baseball diamonds, tennis courts and the like as near the roads and entrances as possible is consistently maintained. Not only is this the best possible arrangement for the convenience and pleasure of the public, but it keeps the inner solitudes of the forest comparatively undisturbed, thus encouraging the increase of plant, animal and bird life.

"One point out of our experience may be worth much to those who administer other for-

est preserves near large cities: no outside individual or company is permitted to erect a building in the Cook County Forest Preserve; this means that the commission keeps complete control over all structures. Our plans provide for the planting of 200,000 trees a year. We put out a great many mulberry and mountain ash trees in order to furnish natural food for the birds. In the growing season, scattered over the whole preserve system, are fields of millet, which are genuine picnic grounds for the birds.

"I doubt that you can find anywhere a place in which the



One of the log cabins built for the Campfire Girls. The Preserve has many shelters of this type with many conveniences for the use of Scouts



Not a great engineering feat, but merely the erection of a dam across a ravine resulted in the formation of this beautiful 30-acre lake in the Preserve. And it has brought healthful outdoor recreation—swimming, skating, bathing, and fishing—to thousands of people

economic value of abundant bird life is more convincingly demonstrated than in the forest preserve system of Cook County. No qualified observer can, in my opinion, make a study of the development of bird and plant life here without arriving at the conclusion that, in actual dollars and cents, the hundreds of thousands of birds which take advantage of this refuge return, in their protection to the trees, a value greater than the annual cost of maintaining the entire forest-preserve system. This statement will probably be unbelievable by those who know little or nothing of the service which insect-eating birds render to trees.

"Not only should every city have an easily accessible forest preserve system, but every town of five thousand inhabitants or more should have at least a small forest preserve near it. This not only because of the immediate recreational advantages of a forest permanently set apart for the enjoyment of the entire public, but also by reason of the fact that these public forests are most instructive demonstration grounds for teaching the economic value of forests and forestry.

"Public forest preserves—and plenty of them, everywhere—seem to me to be the only available means, certainly the best agency, of checking this wanton and incessant waste of our forests. I look upon the Cook County Forest Preserve, for example, as a great school for the teaching of the value of trees to human life. And it does this work well; that I know from close personal observation over a stretch of years. Three months of every year I live in a tent in the forest preserve, mix with the people who come there, and make an intensive study of their reactions to its influence. Every year adds to the pleasure I get out of this study because each season increasingly reveals the wholesome, stimulating and broadening effect of this great educational institution.

"I have seen men, women and children who, on their first trips into the woods, brought with them a spirit of greedy vandalism, gradually develop a fine and protective appreciation of trees, shrubs, wild flowers, birds and animals until they became virtually unpaid wardens of the preserve, always alert to correct and check the same spirit of vandalism which they themselves displayed before they came into a sympathetic understanding of the value and beauty of the things which they came here to see. In short, the forest preserve has taught them one of the most important and valuable lessons in good citizenship possible—that of treating public property with protective care instead of with vandalism. And it put this lesson across unconsciously by a silent appeal to their finer instincts.

"Every time you can get a man, woman or child to understand that public property is their property you have done a worthy and difficult job. I know of no other form of public property which achieves this difficult objective as successfully as does the forest preserve. It seems to have a subtle and inherent influence which brings out the best in those who make use of it, gradually changing their viewpoint to that of sound and constructive citizenship.

"Another outstanding influence of the forest preserve is that of making its visitors discontented with living conditions

in crowded sections of the city and luring them to a freer, more wholesome and natural life in the suburbs. For example, hundreds of city families spend virtually the entire summer in tents in the forest preserve. We give them thirty-day permits for this kind of family camping. Of thirty families living in this way in the preserve at Edgebrook, twenty have left the crowded city districts in which they had lived for years and have secured homes in the suburbs—a large proportion of them buying little places on contract.

"Give a city family of the poorer sort a good taste of the joys of out-of-doors life and that family will cling to it with bull-dog tenacity. This is sharply illustrated by the fact that we have a hard time driving these people out of their tents and back to their cramped city quarters as Christmas approaches. The influence of the forest preserve upon the health of those who frequent it is, I think, altogether too obvious to need emphasis. As a public health measure, there is no substitute for fresh air—the pure wholesome air that is not found in the crowded city flat or tenement of a congested metropolitan district.

"But nature in the wild, as found in the forest preserve, ministers to moral and mental health quite as much as it does to physical health. The boy or girl who acquires a genuine enthusiasm for some kind of research, study or activity which is essentially wholesome, is not nearly as likely to fall a prey to the unwholesome influences of life on city streets. We see this illustrated every day in the forest preserve and I get the biggest kick of my life from it.

"These enthusiasts naturally get together in clubs instead of in gangs. On week ends in the open season the preserve is alive with these clubs of hikers, ornithologists, botanists, entomologists and specialists in the study of prairie life. You have only to listen to the animated talk of one of these groups to realize that their enthusiasm is genuine and absorbing to a degree which permits of no other interests at least for the time being.

"An interesting feature of the forest-preserve influence is the growing tendency to make winter an out-of-doors season. Already we have reached the point where we must provide for the pleasure of the winter enthusiasts—especially the devotees of winter sports—coasting, snow-shoeing, skating, skiing and the old-fashioned snow games, like fox and geese, familiar to the fathers and mothers of the passing generation who spent their childhood in the country and attended district school."

To the people of Chicago—especially those who are unable to afford vacation trips to distant points—the Cook County Forest Preserve is a back-yard Yosemite, so to speak. In this it is typical of virtually every other suburban forest preserve in the country. While it is true that the easy accessibility of some portion of the area to residents of every section of Chicago gives this system an advantage not enjoyed, in like degree, by many other suburban preserves, the fact remains that, in general, it is representative of all public domains set apart for like purposes. Therefore I have used it as an example, a type, of its kind.

A Paper Company Buys from the Farmer

By JOSEPH HYDE PRATT

FARMERS of the South have for many years been attempting to concern themselves with the future timber supply of their region. Their principal reason revolves around the amount of forest land that they own and the amount of timber and other forest products that they use. In the southern Appalachian States the farmers control at least fifty per cent of the forested area and nearly three-sevenths of the forest land in the Southeastern States. Only in Louisiana, Arkansas and Florida is the large proportion of the forested area owned by lumber companies and the State.

In order, however, for the farmer to develop his forest areas to the best advantage to himself and the State, it is necessary that he receive full cooperation in raising and marketing his crop of timber. At the present time there are four governmental agencies ready to assist the farmer in raising a more productive and more valuable timber crop. These agencies are the United States Forest Service, the State Forestry Departments, the Extension Forestry Depart-

ments and the Federal and State Departments of Agriculture.

In addition to these agencies several users of forest products are cooperating with the farmer not only in marketing his product, but also in raising his crop. A splendid example of such cooperation is the Halifax Paper Corporation, of Roanoke Rapids, North Carolina. This corporation believed that it was possible for it to obtain a constant supply of pulpwood within a minimum distance for the operation of its mill. To this end it has made contracts with farmers within a radius of twenty-five miles of the mill to purchase suitable wood for making pulp at a definite price and over a definite period.

The farmers in this district grow principally cotton but have a large part of their land covered with forests, most of which contains wood suitable for making pulp. They have little work to do on the farm after the completion of ginning until they are ready to plow again in April. There is also an idle period after the crop is laid by in August. The Halifax Paper Corporation has arranged with the farmer to

(Continued on page 113)



The Halifax Paper Corporation of Roanoke Rapids, North Carolina, obtains a constant supply of pulpwood from farmers and owners of small wood lots within a radius of twenty-five miles of their mill, chiefly by encouraging the practice of forestry and closer utilization. Above, farmers are shown delivering their wood to the mill.

The Lone Wolf Poachers

By W. M. RUSH

IN a narrow canyon almost in the center of the big game country lay the Two Medicine Ranger Station. It was an unassuming little cabin of two rooms, built of logs and whipsawed lumber, and the turbulent Two Medicine Creek roared unceasingly past its front door.

This was the summer headquarters of Guy Stites, forest ranger, and his domain extended twenty miles to the east, thirty miles to the west, and twenty-five miles north and south. Quite a large territory for one man to look after, and many long hours were required in the saddle or on snowshoes, sometimes to straighten out a threatening battle between rival sheepmen, or sometimes to a forest fire, or perhaps some one was lost. Then in the winter the snow depth must be observed, forage conditions affecting the big game noted, and the trappers checked. But it was in the fall when the hunting season opened that mischief was rampant. The first day of the open season for elk usually found a number of hunters camped on Two Medicine Creek, impatient to kill their elk and get back through the Bearfoot Pass before the snow got too deep. And all of these hunters were not sportsmen, hunting for the pleasure they got out of it; many were killers, game hogs and tooth hunters.

For several years, certain hunters from the town of Lone Wolf had come in early, killed their elk before the season

opened and hung them up in the woods. Then on the opening day of the season had gone out with their limit. Forest Ranger Guy Stites had been worried by this practice, but had always failed to connect up with the hunters in time to prove their guilt. It is not easy for a lone ranger to get convincing evidence against a hunting party violating the laws in a big game country.

One year, Ranger Stites made a particular effort to catch these men, but they eluded him. To make things worse, they had broken into his cabin and stolen a large part of his winter's food supply and four government tents. The ranger did not forget, and when the year rolled by his plans were laid. Late in September he rode down Black River with his pack horses, and along the whole thirty miles of canyon he let it be known by dropping a casual remark here and there that he was taking his horses out for the winter and would not be back for two weeks. But once out of the mountains, however, he did something altogether different. He left his horses in a pasture, had a friend drive him to the town of Lone Wolf and caught the night train. By morning he was back at Meridian. Ranger Harry Little was awaiting him here with saddle and pack horses, and by riding another day and night the two rangers were back in the big game country waiting for their victims. They did not go to the Two Medicine cabin,



Bearfoot Pass, on the way into the elk country, through which hunters had to bring out their elk before snow boxed them in. And all of the hunters were not sportsmen; many were killers, game hogs and tooth robbers.

but to a camp four miles inside the park boundaries where Park Scout Paul Bishop and a soldier were on guard. Here they learned that the poachers had already started their work.

"There was a heavy bombardment north of here yesterday," the park scout informed the rangers. "At least thirty shots were fired and the rascals killed a bull elk not over four hundred yards from this camp. That is nerve for you."

The rangers were serious. "We will have to get busy," said Stites. "Day after tomorrow the season opens and it will be hard after that to prove the killing was illegal."

"We are watching this kill night and day," said the scout, "and will surely nab those birds when they come after it. It is a mighty fine six pointer; meat is all dressed out and hung up. Only the teeth are gone."

The following day was discouraging. The soldier was left to guard the elk carcass near the camp while the two rangers and the park scout traversed the country along the park boundary. They returned without finding a trace of the scene of shooting the previous day. The soldier was in camp when they arrived and was acting strangely.

"Rather goofy looking," Ran-



In this little old cabin the poachers camped, and here the rangers came upon them quietly and overheard them discussing their illegal kill

you an' then maybe you'll believe me."

The three men were silent as they followed the soldier to the spot where the big elk swung from a tree.

"He is over there," cried the soldier. "Here is where I stood when I fired."

Sure enough, there were his tracks in the snow and the empty shells from his automatic, but no trace of any other man could be found.

"I saw him; he had on a red coat," the soldier insisted, "and I shot him five times."

"The man is plumb crazy," Little confided to Stites.

"Yes, I believe he is," the ranger agreed. "This is a pretty mess."

At supper that night Stites spoke up. "Those fellows must be camped somewhere along the creek near the Two Medicine



The stately Elk—lure alike to the legitimate hunter, the real sportsman, and to the poacher and hunter of teeth, such as were rounded up by the rangers

ger Stites said in a whisper to his partner, "and not to be trusted."

This was confirmed a little later when the soldier reported to the men that he had killed a man that day while guarding the elk.

"Good Lord, man, you did not kill anyone, did you?" exclaimed Scout Bishop.

"I sure did," the soldier replied. "He was slipping up on me and I shot him through the heart. Come on, I'll show

cabin. I'm going up there tonight and find out, anyway. Want to go along, Little?"

It was quite dark when, two hours later, the two rangers approached an old shack, a half mile below the ranger station. A camp fire was burning.

"That is their camp as sure as you're alive," whispered Stites. "I'll slip around back and see if I can find out where they have cached their meat."

He dismounted and circled the camp fire. At the far corner of the cabin, he came in close and through the cracks could see three men very distinctly. Two were facing him, while the other had his back turned. These men, he was reasonably sure, were the ones who had stolen his tents the fall before. They were talking about everything under the sun, it seemed to Stites, except their unlawfully killed elk. They even told funny stories. After listening to them for a while the ranger found himself shivering from cold. He was repaid for his watchfulness a few moments later, however. The men inside had stopped telling jokes.

"I tell you we had better wait until the second day of the season before we go after that meat," one of them said suddenly. "Nonsense," one of his companions exclaimed. "There is nothing to worry about. Guy Stites pulled out of this country a week ago."

"I ain't so sure," the third man spoke up. "You never know where he is. I've got a hunch we had better be careful this time or we'll get caught."

"Rats!" the other exclaimed. "What you scared of? I'm going in the park after that six-point head tomorrow. I'm not going out and leave that."

And so on they argued. The ranger, however, had heard enough and sneaked back to his partner.

"We surely have our work cut out for us now," he informed the other ranger. "Let's go up to the ranger station and get a bite to eat."

It was after midnight when the rangers settled down by the fire to discuss the situation. They quickly decided that the park scout and the soldier must be notified of the intention of one of the poachers to return for the elk head, and also that the work of the coming day could best be done on saddle horses. Flipping a coin, it fell to Stites to make the return trip to the camp eight miles away. The first four miles was easy going, along a plain trail, but at the park boundary he had to leave the trail and follow a high timbered ridge to the camp. He aroused the park chief and the soldier, and after a hurried breakfast, the three men rode to the park boundary. It was still dark. They waited impatiently until daylight.

"They've changed their plans," said the park scout.

"Well, here comes Little, he will know," returned Stites.

Little rode up, slightly out of breath. "They pulled out afoot right after daylight," he panted, "leading fourteen pack horses. Headed up towards the Badger Creek divide. Not a rifle in the bunch. Come on, it's a cinch."

First the officers rode to the old cabin where they cached the poachers' rifles and ammunition. Then they took up the trail leading toward the divide. No need to hurry now. Just as Little had said, it was a cinch. About eleven o'clock,

beyond a rocky point, they saw the poachers returning. It was easy now. The man leading the first of the fourteen horses loaded with meat was taken by surprise and, without interrupting the movement of the long string, was led down the mountain until the second and the third men farther back in the string were captured. All were unarmed. They had killed and dressed out seven elk two days before the season opened.

The soldier, who up to this time had been silent, now pulled a stunt that proved beyond doubt that he was insane. Flashing his automatic he poked it into the ribs of one of the captured men.

"I'll kill you if you wink an eye," he shouted, his eyes bulging and glaring.

It was a torturing minute—if an unarmed man was shot the whole country would be inflamed against game law enforcement. The scout saved the day.

"Soldier," he said softly, as if hardly daring to speak, "do you suppose our pack mules will get hungry tied up in camp all day?"

The soldier lowered his automatic and turned around.

In an instant the two rangers were upon him, one holding his arms while the other disarmed him.

The rangers took the poachers to the cabin and searched them thoroughly for elk teeth. They found none. Early next morning they started to Meridian, taking along the left hind quarter of each elk to prove that seven animals had been killed.

At Meridian, the poachers were given a stiff fine and their hunting licenses revoked for the balance of the year. Later, a Federal charge was filed against one of them for killing an elk in the Park. The government's evidence was based on horseshoe tracks around the scene where the elk had been killed in the Park. They conformed to the shoes on one of the poacher's horses. Then, of course, the admissions the ranger had heard the poachers make around the camp fire were convicting. The jury found the man guilty and he was given a heavy fine by the Federal judge.

Three months after rounding up this gang, Guy Stites and another ranger snowshoed their way to the Two Medicine station. Five feet of snow covered the country. No one had been at the station since the night the poachers had been searched.

"I've always wondered what those fellows did with their elk teeth," said Guy. "They either threw them away or cached them some place around the station."

While Guy was searching for the teeth, his partner was busy building a fire and preparing supper.

"You fellows must have left here in a hurry last fall, you did not even empty the coffee pot," Guy's partner chided.

A few minutes later he was dumping the coffee grounds in a pail. "Look here, Guy," he cried, "here are your teeth."

"Yes, I remember now," he said. "I let that fat guy help with the cooking that time. He was slicker than I gave him credit for."

There were ten pairs of bull's teeth and as only two of the seven elk taken in were bulls, it showed that eight more bulls had been killed just for their teeth.

Progressive Publicity in Forestry

By ERLE KAUFFMAN

THERE is an idea current that publicity is a short cut to immortality. This is partly true. Able practitioners, or press agents, have paved the way to a superabundance of fame and wealth throughout the world. The obvious necessity for this talent is found in the history of every great movement; its place in industry is evidenced by the rapid spread of publicity as a vocation. Any sound and well meaning movement attempting to prod its way into the limelight in this day and age without the aid of a public relations counsel, or press agent, is apt to find the mind of the public closed against it.

This does not necessarily mean that publicity may be used as a corrective or cure. While its practice possesses a great amount of restorative power it can not be used entirely as a remedy for ailing problems and sick policies. As a point of fact, this sort of publicity grooves into the hokum type and lacks the spontaneity so essential to this means of rolling into fame.

Without spontaneity, publicity is of little or no value. The day of hopeless conservatism is past. To be of use, publicity must be one jump ahead of the public, and anyone who contends that today's moderns will fall for conservation of ideas is suffering a foolish and dangerous delusion.

Sad to relate, forestry has not shown the advancement in this department that has been evidenced in other, particularly in technical, branches of its art. Regardless of the fact that the greatest single problem on forestry's horizon is the conquest of individual carelessness, its public relation contact has been written to the tune of conservation, in theory

and in practice. Our able foresters, busily hatching out plans and devices for the orderly perpetuation of timber, promising big things which only the unfolding of time's pages can prove to be true or false prophecies, have worked themselves into a state of lethargy without finding that forestry needs spontaneity and a progressive outside touch.

With its universal appeal and everyday application, there is no reason why forestry should encounter any serious difficulty in broadside publicity, with the ultimate end of greater public cooperation. Judging from past performances, however, our foresters have been hotly competing with the natural consequences of a fickle nature without first adjusting their avowals with public sentiment.

Instead of promulgating forestry as a reward for those who follow its course, they have dictated a sort of daily discipline to correct the mistakes of thoughtless and truly wasteful forefathers. They propose a sort of penance for the sons and daughters of these ancient transgressors. This may or may not be in accordance with the principles of forestry; it may or may not be necessary to exploit its practice, but what-



New Jersey Department of Conservation and Development

Education in fire prevention might have saved this New Jersey home destroyed by a forest fire. Instead of preaching suppression, foresters must show the way to prevention; but it can never be achieved by strict conservation of ideas and muffled publicity

ever its reason, it lacks public appeal and the spontaneity so essential to progressive publicity.

Indeed, the program of conservation inflicted upon our sensation loving public by our highly technical foresters has taken the form of a national burden, to settle over the country like a great smoke blanket from a burning forest. Their best laid plans have been too strongly saturated with the element of intellectual survival; their forms have been wrought out of strictly educational matter. All in all, for-

estry as a business has been magnified into a religion, preaching despair instead of hope, pointing to defeat instead of victory and offering responsibility instead of opportunity. There has been entirely too much of the sermon element and not enough of the press agent stuff. Publicity, as an aid to forestry, must not be confined to a highly educational plane, but must be placed on the family table of the average citizen for digestion.

Most of the publicity matter of the foresters finds an outlet in forestry and lumber trade papers and journals. This is obviously necessary from a trade standpoint, but a useless instrument in storming the citadel of the public. The newspapers, publicity's greatest implement, have, by reasons of their own or otherwise, in the past proven ineffectual in the art of dispersing the trials and tribulations, the songs and legends of our body of foresters. This because our foresters have wrapped themselves in a blanket of strict conservation of ideas and are subject to extreme policies and practices. They can never hope to make their mark in the pages of our daily newspapers if they strip their publicity of public appeal and substitute with technical bilge. Nor can it be asked of editors and publishers to burden themselves with the foresters' woes. Their answer is plainly, "The public doesn't want it." And it is only too true, the public doesn't—not sermons on conservation.

The publicity the foresters have handed us is based on the theory of the right of every American citizen to protect the creations of their nature to the extent of their personal interest. It is more or less of a leave it or take it theory; it is argued that a person with a working interest in forestry would no more hinder the work of the foresters than would a disinterested person further it. This would appear that the foresters expect no such thing as united effort; that the notion of complete harmony in a national program of forestry is an absurdity, and that an attempt to utilize the vast domestic features that embrace the working of forestry is an infringement or a restriction on common rights.

While the mind of the public is acutely responsive to what the foresters have to say, it refuses to see our forest situation through the glasses of conservation. True, this may be little more than an evasion of responsibility, but it symbolizes the ideas and thoughts of a colorful and progressive people. Once forestry is mixed to their taste the momentum of everyday living will carry it on, but to catch our foresters in a mixing mood is something that most people have failed to do. Instead, they sit starchy on their perch, monarch of the little universe bestowed upon them, handing down that part of forestry which pleases them most; watching the happy, honest, thrill-loving average citizens in their merry whirl of living without realizing the power that lies therein.

Education is, no doubt, the most direct way of acquainting the public with the simple problems our forests offer. The classroom and the clubroom are equally desirable and equally responsive to our foresters. Lengthy lectures, illustrations and demonstrations are applauded. The foresters find their audience kindly, polite, entertaining and sympathetic. Carelessness and waste are damned, redamned and crucified. Five

days later Yale defeats Harvard and ten thousand board feet of wood goes up in smoke in a huge demonstration, and a high wind catches the sparks and sweeps them over the houses to the woods beyond. Or the Club for the Protection of Trees prepares luncheon and sets forth to its favorite forest for an afternoon's study. Between discussions of fire prevention a burning match or cigarette is tossed to fall where it may. A dry twig, a faint breeze—fire. The best informed man on fire suppression is consulted and his advice to run like hell and pray for rain is met with immediate approval. That night the Club meets and the speaker rises from his chair, shakes a disapproving finger at his audience, and cries: "See, I told you so." Which all goes to prove there is education and education.

Not so many years ago I dropped exhausted beneath a large sugar pine high up in the Sierras. My body was torn and bleeding; the world was fragile and fleeting, whirling around like a top. Life seemed to me at that moment a coin in the air, and so utterly fatigued was I that I didn't care a whoop whether it fell heads or tails.

For eight days, working four hour shifts, I had, with several hundred other aching souls, thrown my strength against a solid wall of flame. Incessant hours of back-firing, wearying moments of felling burning trees; pausing to dare hope that the wall of flame had been corralled; cursing when the wind carried sparks and flaming embers high over our heads. I'll never know again the agony of illuminated nights, suffocating days—the hysterical laughter of straining men—the terrible crackling of igniting trees—the keen, unbearable edge of that wall of flame—not quite as I knew it then.

Upon my arrival in San Francisco several days after the fire had been brought under control, I was shown a copy of one of the city's leading morning newspapers. Quite dramatically the writer had set down paragraphs of imaginary fire fighting along a five-mile front. Quite indifferently and unknowingly, perhaps, he saturated his story with threads of neglect and improper management on the part of forest officers. In other words, the fire would have been confined to a miserly few acres had the captains of battle taken a few pointers from this ardent young reporter. It was great stuff, from a newspaper standpoint. It was progressive journalism. Yet, it was as deadly a weapon against the principles of forestry as had been that towering wall of flame back in the mountains.

What a great difference it would have made if that young reporter had spent his energy chanting over the fact that by modern tactics forest rangers were enabled to halt that wall of flame, thereby saving a million or so board feet of valuable timber. Suppose the foresters had allowed him to state that in accordance with the program of forestry 20,000 acres of charred stumps would be reforested. Suppose they had enlightened him on the modern methods employed in fighting forest fires, had explained the situation, step by step, and indicated, although it required a little time, the reasons for this and for that. This would have brought about the bright side of forestry, the real purpose of its workings; it would have served to overshadow the dread-

ful impression the fire left on the minds of the public. This would have been progressive publicity.

It so happened that I listed this young reporter among my acquaintances in San Francisco, and took advantage of the fact to inform myself of the means by which he arrived at his conclusions.

"Why," he told me, "my information came from forestry officials." He mentioned several names.

"But, surely," I argued, "they did not deliberately impress upon you that neglect and poor management was evident. They did not paint the picture as black as you have painted it."

"No," he snapped back at me, "they didn't. To be frank, they didn't impress me at all, and only by wise questioning was I able to drag out the few facts that I had. The rest of the story came from my imagination—it had to come from some place, you know."

"Would you have used anything they gave you?" I asked. "Would you have mentioned new equipment, new methods and a reforestation project?"

"I was wide open," was his immediate reply.

It is no simple matter to adjust the national forestry

situation with public sentiment. To what extent this important step is carried on remains entirely with the caliber of men behind the forests. Nor is it an easy matter to determine how much of the progressive element enters into public relation plans. All through the long years the public has been sniffing the terrible odors coming from burning forests. They have watched the rapid breaking of their timber resources without realizing that something more could be done about it. It is up to the foresters to lead the way; but it can never be achieved by strict conservation of ideas or muffled publicity.

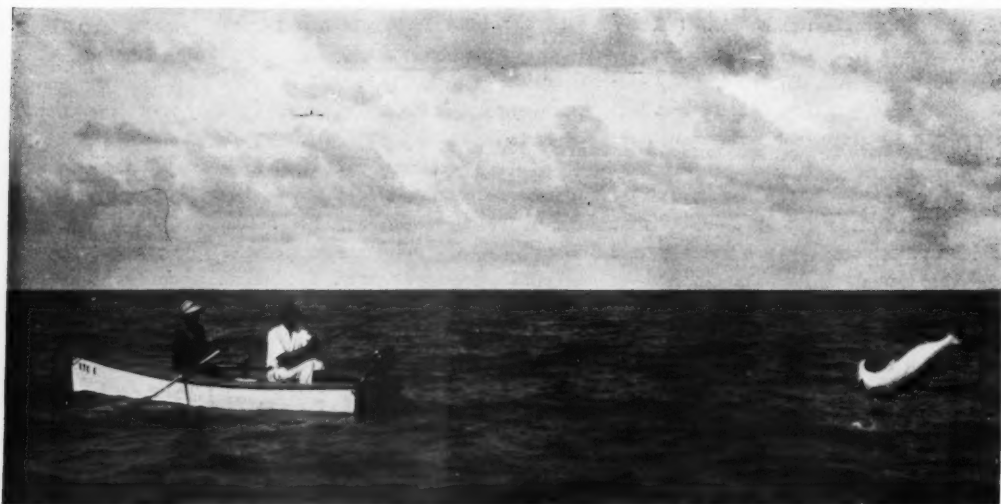
On the last frontier of civilization the public is ready to fight side by side with the foresters for the country's vanishing timberlands. The scenic beauty of our forests mean as much to the public as timber and forage cover mean to economic development. The time will come when the nation will have a wonderful system of forestry. The time will come when we shall be a nation of foresters, and when the constructive administration of our forest land will be formulated into a romantic and prosperous pastime. There are no more limits to progressive publicity in forestry than in any other great movement.



Denver Chamber of Commerce

The result of the right kind of forest publicity. Boys of the Manual Training High School, Denver, Colorado, planting western yellow pine. They have been made to see forestry as an opportunity, and are responding with the spirit that will some day make America a nation of foresters

The Silver in Ad



Venice Tarpon Club

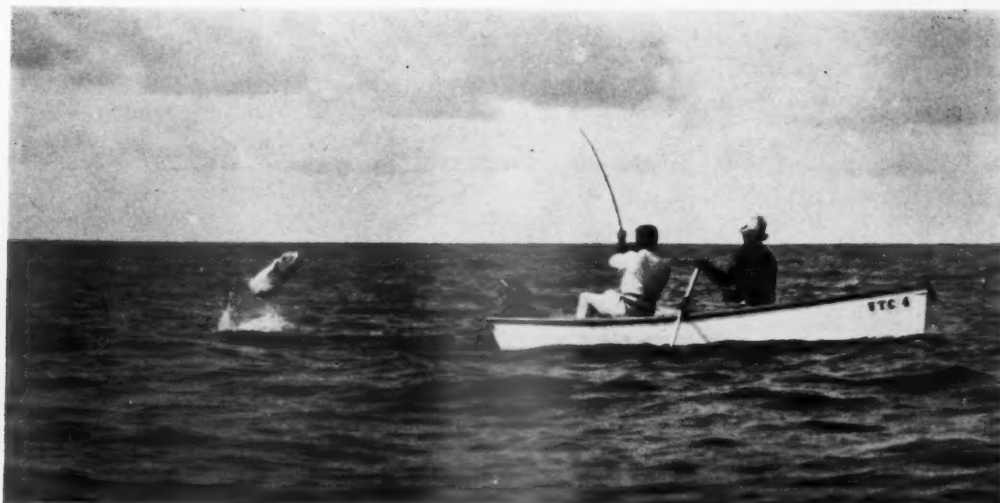
With line tense and muscles straining, the deep-water fisherman finds a virtual paradise off the west coast of Florida, where the tarpon, the Silver King of the Gulf of Mexico, holds sway. In the picture above, the silver flash has just been challenged and comes up to salute his challenger



Venice Tarpon Club

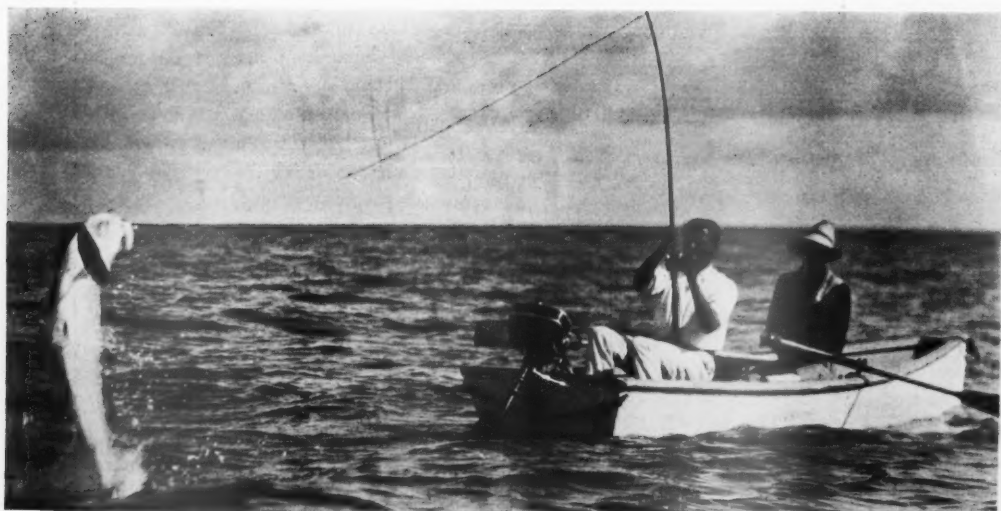
Zooming with the agility of a bird and the strength of a panther, the tarpon flashes the silver of his body in a flaunting challenge to his challenger. Ever dangerous, always uncertain and eternally fighting, the Silver King must be expertly handled if he is to be conquered with rod and reel

Silver King Action



Venice Tarpon Club

Testing the strength of a twenty-ounce rod and a forty-two-pound test line. Here the Silver King begins to unfold his bag of tricks, charging and fighting with all his one hundred and twenty pounds in a manner that has made him one of the most famous game fish known to the sportsman



Venice Tarpon Club

The Silver King's last gesture at freedom. Unable to free himself, he rallies for a final vicious assault. For more than an hour he has earned the sportsman's respect for his gameness, and not until his sleek, silvery body lies exposed to the sun and air will his powerful tail cease to flaunt its defiance



A general view of the Black Forest of Germany, which is included in the Association's European Tour. This forest area is one of the most famous in the world, and here one may see European forestry at its best

The Association's European Tour

*And What Some
American Foresters
Think About It*

FOLLOWING the announcement in the January issue of *AMERICAN FORESTS AND FOREST LIFE*, of The American Forestry Association's European Tour, which provides an opportunity for members and their friends to visit some of the most famous and picturesque forests of the Old World, under the guidance of the best informed foresters of Europe, the Association has received many letters of commendation from American foresters familiar with European forests and forest conditions. It is believed that some of these letters will be of great interest to those contemplating the trip, and the Association is therefore publishing excerpts from them.

Colonel Henry S. Graves, Dean of the Yale School of Forestry, writes: "I am glad that the tour includes Fontainebleau. It is one of the finest park forests in the world. It is an example of what French foresters can do in safeguarding the scenic interest of a National Forest. Those who are interested in municipal forestry will have the opportunity to see a splendid example at Heidelberg. The Black Forest will remind many of the visitors of the Adirondacks. In Sweden and Finland, also, one can see forests that are suggestive of our own. Here and in all European countries one can find examples of forestry that hold out an object lesson for us."

S. T. Dana, Dean of the School of Forestry and Conservation, University of Michigan, writes: "The itinerary seems excellent, and I think that the tour has been mapped out as interestingly and as profitable as is possible in the time available. It strikes me as a particularly happy arrangement that the tour includes not only France, Switzerland and Germany, where forestry has been practiced intensively for years, but also Finland and Sweden, where both forest and

economic conditions are more similar to those in this country. I am confident that those who participate in the tour will not only have an enjoyable trip, but will return to the United States with a broader vision of the possibilities of forest practice here."

Philip L. Butterick, Secretary of the Connecticut Forestry Association, writes as follows: "I have read with great interest your announcement of The American Forestry Association's European tour. If those who take part in it gain the inspiration which most American foresters have derived from a study of European forests, it should be one of the finest things the Association has ever undertaken. I shall always remember the profound impression made upon me by the Forest of Fontainebleau, in France. Its evenly distributed age classes, fully stocked stands, scenic reservations and beautifully landscaped roadsides were not only a professional but an artistic delight."

Ralph S. Hosmer, Professor in Forestry, Cornell University, says: "The plan of travel makes it possible for one to see in a short time some of the most interesting portions of Europe, both in regard to forests and cities. Perhaps the most significant feature of the tour is the attention given to forest research in Sweden and the inspection of the Black Forest of Germany, where one may see European forestry at its best. Further, the Association is to be congratulated that the visits to the French forests are to be under the guidance of officers of the French Forest Service, as there is much of interest to see in that country."

A descriptive booklet has been prepared setting forth in detail the many excellent features of the Tour and the optional extensions. This may be obtained by writing The American Forestry Association, Lenox Building, Washington, D. C.



EDITORIAL

A Forestry Wash-out

MAJOR GENERAL EDGAR JADWIN, Chief of Army Engineers, and the Mississippi River Commission, in their recent reports on flood control, have given forestry as complete a "wash-out" as a meeting of closed minds could well make possible. Their conclusions in respect to forests as a contributing measure of flood protection expose a regrettable inability to grasp a related part of a great public problem. Some of their reasoning is an affront to the intelligence of the American people. Outside the law, ignorance is often excusable. Neither General Jadwin nor the Commission can well claim this alibi for their astounding conclusions. During the past summer and fall the Forest Service made a special study of the protection forests of the Mississippi watershed and their influence on flood prevention; they were assisted by state agencies in the states involved. All told, some one hundred men, recognized as the highest authorities in their especial fields, contributed data for the Forest Service report.

General Jadwin knew of this study. He had sanctioned it in advance. The compiled report was made available to him, and in his own report to the Secretary of War, dated December 1, 1927, he refers to it. After making some general observations on the importance of forests in conserving our timber supply, in preventing hillside erosion in areas subject to this damage, and in affording recreational and scenic advantages to the public, he admits that forests may have a useful local effect in reducing the torrential floods in mountains and hilly regions. But he sees the Mississippi watershed as too vast a region for forests to exert any appreciable influence during flood stages.

"Studies of the Reservoir Board," declares General Jadwin, "have shown that to reduce the flood stage of the Mississippi by one foot, it is necessary to store from seven million to eleven million acre-feet of water. The absorption and retention of one-half inch of rainfall on the 8,000,000 acres of land covered in the recommendation of the Forestry report would, therefore, reduce flood stages by but one-half an inch." One is forced to the conclusion that General Jadwin did not understand the Forestry report or that he was not sufficiently interested in it to give it the careful study which the subject demands as an integral part of the flood control problem. In any event, General Jadwin, in asserting that through possible forest protection the flood stage might be reduced only by a bare half inch, seems to have made an analysis 95 per cent wrong.

The Forest Service report summarized its findings of fact and made eight specific recommendations for taking advantage of forest influences in bringing about eventual permanent control of the Mississippi River. Seven of these in their order of importance are: Adequate protection against fire of the forest lands within the Mississippi River watershed; increased activities in the planting of lands chiefly valuable for growing timber; proper management of farm woodlands; extension of public forests to the extent of about 8,000,000 acres within the watershed; continued protection of National Forests and the reservation of adjoining forested acres of unreserved public domain; research to discover methods of preventing serious erosion in the "Bad-lands" and the "Brakes"; checking present destructive run-off and erosion from public grazing lands by regulating their use. All of the foregoing recommendations, with the exception of the last named, are possible and practical under existing laws. The Forest Service estimates that these seven activities, if carried out, would result in excluding a large part of the silt from the Mississippi River floods, and that the 250,000 square miles of forest land in the Mississippi Basin thus given proper management, protection and upbuilding, would materially increase the capacity storage of the watershed.

Converting 250,000 square miles into acres, one arrives at a total of 160,000,000 acres of land within the watershed that could be brought under the controlling effects of forests. General Jadwin, however, apparently ignores all of the Foresters' recommendations excepting the one calling for an increase of 8,000,000 acres in public forests, and rests his case on the assertion that this acreage "would reduce flood stages by but one-half inch." Applying the General's own calculations to the 160,000,000 acres of forest land which the Forest Service report shows possible of treatment, the reduction in flood stages would be ten inches instead of "but one-half an inch," or twenty times as great as General Jadwin erroneously asserts. It is well enough to ignore one-half inch as a negligible factor of control, but it is quite another matter to ignore ten inches when millions of dollars in private and public property and thousands of lives are at stake. In many a great flood a marginal protection of ten inches may be the one factor that saves the nation from a national catastrophe like that of 1927.

The report of the Mississippi River Commission goes even

wider the mark. The Commission washes its hands of forestry by declaring reforestation would not be efficacious, and that, furthermore, it would be economically unsound. Its first conclusion is apparently based upon some data from a comparatively level region of sandy soils and innumerable lakes in the Lake States, which any forester of intelligence would know off-hand could have little influence in regulating run-off. Its second conclusion seems to be based upon an erroneous belief that flood relief through reforestation is to be obtained by turning productive farm lands back to forests. This statement is illuminating only in showing that the Commission does not comprehend even in an elemental way the application of forests to stream flow. By its own words it exposes an utter lack of ability clearly and properly to state the problem. Those who are asking that reforestation be made the most of in flood control never have advocated diverting productive farm lands to the growing of

trees; they are merely asking that the millions of acres of wild land, particularly those in hilly and mountainous regions and chiefly valuable for timber growing, be utilized through forestry to exert their greatest possible influence in preventing soil erosion and in slowing down the rate of run-off.

A reading of the two reports leads one to the belief that neither General Jadwin nor the Commission has made a sincere effort to study or weigh forests as a flood preventive factor in the Mississippi River water-shed. So far as they are concerned, the work of the Forest Service and the states in making available authoritative data, seems to have been a waste of time and money. Fortunately, the whole subject is to be studied by Congress, where, it is to be hoped, real intelligence, understanding and sympathy will be brought to bear on the part which forests may be made to play in the permanent solution of the Mississippi River problem.

Forest Research Marks Time

THE United States Government is aptly termed the largest business organization in the world. Unlike other large businesses, however, it hesitates to attack research problems with real vigor. A single instance is illuminating. For many years a modest appropriation for fundamental research in methods of controlling the western pine bark beetle has been sought. In the budget just published the insignificant sum of \$9,810 is recommended for this work. The great pine belts in California, Oregon, and the Inland Empire country with losses totaling millions annually are entirely neglected. Highly trained scientists giving practically their entire time to control work are without funds for developing through research more efficient methods of control.

Various forest experiment stations throughout the country are granted practically no increase for seeking short-cut methods to promote forest protection and industrial reforestation. The agencies which hold the purse string of our government are still unconvinced as to the increasing importance of fundamental research, in spite of the fact that it is responsible for millions in savings and increased wealth every year. This is reason enough for urging the passage of the McSweeney bill which would write into law a definite federal policy covering forest research in all its branches. It is important as a means of securing money, but far more necessary as a stroke of education to those who do not now understand the word economy.

An International Park and Forest

THERE are many who feel that the policy of the Forest Service as applied to the administration of large portions of the Superior National Forest in northern Minnesota as wilderness canoe areas should be made inviolate by legal sanction so as to preclude the invasion of economic interests inimical to wilderness recreation. It is pointed out that a real danger is pending in the project for raising the natural water levels of the Rainy Lake watershed and waters along the Canadian boundary for private power development. Approval of the project would flood large areas of the forest and destroy their primitive wilderness character. The application for this development is now before the International Joint Commission, created by treaty between the United States and Great Britain in 1919 as an agency for preventing disputes regarding the use of boundary waters and to settle all questions pending between the United States and Canada involving rights along their common frontier.

Public sentiment in both the United States and Canada is strongly against this development, and rightly so. What the attitude of the commission will be remains to be seen. In the meantime the Izaak Walton League of America has come forward with a positive plan of joint action between the United States and Canada to preserve for all time the

wilderness values of the Quetico Provincial Park in Canada and the Superior National Forest in the United States. Its plan proposes that by treaty between the two countries existing natural water levels of the two regions would be held inviolate and regulated in the public interest, and that logging the shore lines of all lakes, including islands and navigable streams, would be prohibited. Where present shore lines are barren of forest growth reforestation would be undertaken. A uniform policy of administration would apply, coordinating utilization and development of the areas under modern forest practices with recreational use, the preservation of wild life, and the perpetuation of primitive historical values.

The League's plan is an appealing one, and merits public support. It would create an international playground easily accessible to twenty-five million people and in a region replete in historical associations. More than that, it would commemorate a phase of early American settlement immortalized by the northern Indians, the *Couriers de Bois*, the French missionaries, and the hardy trappers of our early days. These values are perhaps sentimental, but they form a background which gives a thrill of patriotism to the blooded American. And that is decidedly worth while.

By Dog Sled AND CANOE



By William L. Barker, Jr.

BETTER make it a hundred pounds of yellow cornmeal," said the chief of the government timber survey party at headquarters camp, as he completed his supply order over the telephone to the store in Grand Marais. The meal was for sled-dog feed and an occasional Johnny-cake for the cruisers. Yellow cornmeal is supposed to be stronger food than white meal, and both men and dogs need the stronger varieties in the Superior National Forest in Minnesota, where the temperature sometimes drops to 50 degrees below zero.

Dog sled transportation was used in this forest for the first time in 1925 while cruising government timber north of Grand Marais. The only other way to move the camps and keep them supplied with food was by manpack. The lands being cruised were so intermingled with State and private lands, which were not being cruised, that many small camps were necessary to prevent excessive travel to and from work. The three crews occupying as many camps were moved about

once a month, eight, ten, or perhaps fifteen miles.

The Minnesota State Game and Fish Department at Grand Marais loaned us an outfit consisting of six dogs, harnesses, a ten-foot toboggan and Alec Boostrom, an expert dog teamster. Late in January, Mulligan's camp was moved about ten miles. Alec estimated that he had nearly half a ton in that load. The men had argued whether or not all of it could be moved at one time and Alec just kept piling it on, a ten by twelve canvas tent, a Kimmel camp stove, an airtight heater, kitchen utensils and about one hundred and twenty pounds of blankets. Then, of course, there were three pack sacks of personal equipment and axes, saws, a small wash tub, stove pipe, and about a week's supply of "chuck"

for the crew of three men.

Of course the load was three times as high and twice as heavy as a decent load should have been under the conditions, no trail and some soft snow, but they made excellent time on Northern Light Lake and up Brule River. When the route left the river it was necessary to cache about



Sawbill Ranger Station in the Superior. Reached in the summer only by canoe, in the winter it serves the pack and dog-sled crews for short stop-overs when a camp is moved

half the load in order to get the absolute necessities to the selected camp site before dark. The next day Alec and I took in a load of chuck from headquarters and picked up the equipment left.

Carney's camp of about 800 pounds was moved eight miles with this same outfit. About five miles of the trail was on South Brule River, packed hard and in excellent condition except for a half inch of fresh snow, which caused the load to pull considerably heavier. Even so, the round trip was made in about seven hours. Returning, Alec and I both rode the toboggan most of the way and made the run in an hour and a half. The dogs were pulling us at the rate of at least six miles per hour on the river trail.

bulk of the dog's feed, with fish, tallow, meat scraps or lard mixed in to make it richer.

Each dog gets about two or three quarts of this mush once a day, when his work is done. He generally sleeps on a bough bed in the snow, chained to a tree so that he can not reach any of the other dogs. The best dogs are part wolf, but are usually friendly. Dogs really dangerous to handle are rare. Like good hunting dogs, they do not "just grow" like Topsy, but are bred and raised from sled dogs of recognized ability and disposition. It is a pleasure to work with them, for they are willing, hard workers, and like their jobs. "A dog's life" may have been coined about sled dogs by some misinformed sentimentalist, but I'm betting a good sled dog



The dogs did not need the rest just then, and it was 30 below zero that morning. "Why stop," said Cliff, the leader. The dogs in second and third places from the toboggan considered starting a fight for exercise

Moccasins are the best footwear when you are "followin' the dogs." They weigh ounces as against pounds for rubbers, and the weight of your feet is a big factor when there is a lot of running to do. The driver has to keep up with his dogs, because a runaway dog team is almost certain to end in a general fight and the death of several dogs—all the good ones probably, for the best pullers are often the hardest fighters. A driver with a large team of sled dogs usually carries a whip with a heavy butt. When two dogs in the team start fighting, others soon mix in, and the driver may have to knock one or more senseless before he can get control of his team again. Crippled, chewed-up sled dogs are even less desirable than lame or sore-backed riding horses.

The dog's collar and his feed are the most important things to watch. The collar must fit properly and, especially, it should not be too large. Young dogs or soft old ones should not be worked hard until their shoulders become toughened. Cornmeal mush, thoroughly cooked, forms the

would resent it, for these "hard-boiled" canines enjoy their work.

The "lead" dog, of course, is the brains of the team. He must know "whoa, gee, haw" and "all right," which is generally given him as a "go" signal. He must use considerable judgment in keeping his team properly strung out behind him and watch and listen alertly for the driver's commands.

Last winter we hired a team of three dogs and a driver by the month and kept them busy taking care of four camps of cruisers, six to sixteen miles from headquarters. The driver was half Chippewa Indian and half French and a credit to both nationalities. Three of us made the twenty-five mile trip from headquarters to Grand Marais in six hours. The inspector from Denver and I rode about half the time, but Freddie, the teamster, trotted along behind his team. The next day Freddie and I returned with a loaded toboggan in about eight hours, including a stop of one hour for dinner.

Dog sled transportation is used mainly for business by

resort keepers spending the winter on their properties, by trappers, State Game Wardens patrolling the refuge and supplying the trapper-wardens, fur buyers, Indians after supplies, lumber company engineers locating logging railroads, Government or private engineers examining water power projects, State or Federal foresters cruising timber and an occasional farmer-trapper-resort-keeper out after supplies or mail.

A few dog-sled trips have been made through the forest entirely, or mainly for recreation. The State Game and Fish Department organized a trip each winter for several years and took large parties through the game refuge, which includes the greater part of the Superior Forest. They were chiefly newspaper and magazine writers, photographers, sportsmen and a few professional men from St. Paul and Minneapolis. A city park superintendent and a newspaper editor employed a resort owner and his dog team outfit about a year ago and made a ten-day trip through the east end of the forest. They were out for recreation, wild life study and newspaper and magazine material. They experienced much soft snow.

considerable cold weather and the usual trouble with soft feet, new rubbers and uncomfortable snowshoe harness.

When the snow melts and the ice "goes out," one discovers that many of the winter trails were merely frozen, snow-covered summer routes. The dog team men put away their toboggans and get out their ca-

noes; hang up their dog harnesses and take down their paddles. Lace boots are oiled and mosquito canopies are inspected and mended carefully. The supply stores display fishing tackle, place "fly dope" on the front of the shelf again and the "dog skimmers" begin wrangling "wild lifers" instead of cruisers and engineers.



A trapper's tent, pitched in the fall ready for winter. The pole and bough shelter protects the light silkoline tent and makes it warmer

About one-tenth of the area inside the Superior National Forest boundaries is water. This does not mean, as many unacquainted with the country seem to think, that one may travel one mile on the water for every nine miles on land. It does not happen that way. The water is not evenly distributed. Some areas are more than thirty per cent lakes and many large areas include no navigable water. In the region just north of the forest boundary, along the International Boundary and in the adjoining country of southern Canada, the lake areas often exceed the land. The per cent of portaging to paddling is at the minimum, the fishing is

better than anywhere else in the whole Arrowhead Country, and probably ninety per cent of the canoe trips are routed through this region. The guides usually recommend it.

The Kawiwi-Isabella loop is the finest long canoe route in the region and includes Lake Insula, generally conceded to be the most beautiful lake in the Superior. This route lies in the heart of the forest and is included in the 1,000 square miles of "Wilderness Canoe Area," where all other forms of recreation not directly connect-



In the Superior, in winter as well as summer, the men often gather round the blaze of the big campfire before turning in for the night

ed with or essential to canoe camping are prohibited by the United States Forest Service. Resorts, summer cottages and automobile roads are among the things not permitted within this area. The Kawishiwi-Isabella Route is the easiest circle trip of any length in the Superior Forest, but it is not popular. Apparently the portages are too long or too

frequent. The mosquitoes, sand flies and "no-see-ums" are no larger, more vicious or numerous than on other routes.

Since every piece of the outfit must be picked up and carried a great many times on a canoe trip, everything is reduced to the minimum weight. Silkoline tents with light canvas floors and bobbinet fronts provide adequate protection from the elements and insects, weigh very little and do not



An island camp in Insula Lake. Note that the fireplace is built close to the water, where the fire may be easily and completely extinguished

equipment, graded portages, boat landings, improved camp grounds and everything possible to speed it up, travel by canoe is a very slow way to move men, tools and supplies to a forest fire. The wilderness area must be protected from fire as well as from roads and other conflicting developments, but people near the forest can accomplish eighty per cent of this protection through prevention.

take up much space in a pack sack. Aluminum cooking utensils, plates and cups fit into a canvas bag to protect the other things in the pack sack from fire-black. Fifteen to seventeen foot canoes have been reduced to fifty to sixty-five pounds weight. Even the ax is reduced to a "child's edition." But even with all the reductions in weight of

Association Names Officers for 1928

FOLLOWING nominations by the Committee of Elections, and endorsement by vote of its membership, The American Forestry Association announces the election of officers to serve for 1928:

George D. Pratt, of New York, was reelected President. Vice-Presidents reelected are as follows: Daniel Carter Beard, New York, National Scout Commissioner, Boy Scouts of America; Miss Martha Berry, Georgia, Founder Berry Schools; Clarence B. Blethen, Washington, Publisher, Seattle Times; Bertha Chapman Cady, New York, Naturalist, Girl Scouts; D. C. Everest, Wisconsin, Vice-President, American Paper and Pulp Association; Richard T. Fisher, Massachusetts, Director, Harvard Forest; Fairfax Harrison, Virginia, President, Southern Railway Company; Carl Hayden, Arizona, United States Senator; John L. Kaul, Alabama, President, National Lumber Manufacturers' Association; A. W. Laird, Idaho, President, Western Forestry and Conservation Association; Charles L. McNary, Oregon, United States Senator and joint author, Clarke-McNary Law; L. J. Taber, Ohio, Master, National Grange; Sir Henry Thornton, Canada, President, Canadian National Railways; Tom Wallace, Kentucky, Chief, Editorial Staff, Louisville Times; Owen D. Young, New York, Vice President, General Electric Company. New Vice-Presidents elected include: C. G. Dunwoody, California, Conservation Department, California Development Association, John C. Phillips, Massachusetts and Washington, D. C., Game Conservationist, B. F. Williamson, Florida, President Florida Forestry Association; Roy O. Woodruff, Michigan, Representative in Congress, and joint author, McNary-Woodruff Bill; Charles W. Folds, Illinois, Chairman, Board of Directors, Izaak Walton League; and Harvey N. Bissell, California, President, Conservation Association of Southern California. George O. Vass, Washington, D. C., Vice-President, Riggs National Bank, remains as treasurer; Reelected to the Board of Directors were Henry S. Graves, Connecticut, Dean of Yale School of Forestry, five years; Charles Sheldon, Washington, D. C., Author and Explorer, five years; William P. Wharton, Massachusetts, Secretary, National Association of Audubon Societies, five years; William M. Ritter, Ohio, Hardwood Manufacturers' Institute, four years.

The American Forestry Association to Hold Joint Session with Missouri Forestry Association, February 17 and 18

THE Joint Annual Meeting of The American Forestry Association and The Missouri Forestry Association will be held at the Statler Hotel, St. Louis, Missouri, February 17 and 18. As in previous years, an enthusiastic gathering of members of the Associations and of prominent foresters and conservationists from all parts of the country will assure an interesting meeting.

An unusually interesting and constructive program has been arranged. Governor Sam A. Baker, of Missouri, will open the morning session of Friday, February 17th, and Dr. Hermann Von Schrenk, President of the Missouri Forestry Association, will present the forest situation in Missouri. Dr. Wilson Compton of the National Lumber Manufacturers Association, will speak on "What Industrial Forestry Asks of the Public," and Samuel T. Dana, Dean of the Michigan Forest School, on "What Public Forestry Asks of the Lumberman." George D. Pratt, President of the American Forestry Association, will discuss "Public Aspects of Stability in the Forest Industries."

The afternoon session will be devoted to conservation questions relating to the Mississippi River watershed, its relation to different States which it embraces and to the Nation in general. Among the speakers will be Colonel William B. Greeley, Chief, United States Forest Service, and Hon. Charles Nagel, Chairman, Business Men's Commission on Agriculture. On the evening of February 17th, the Associations will hold a joint banquet at the Statler Hotel, with Honorable Harry B. Hawes, Senator from Missouri, as toastmaster. Miss Martha Berry, nationally known as founder of the Berry Schools, Georgia, will be one of the banquet speakers.

On Saturday morning, February 18th, the session will be devoted to a discussion of "Forests and Industry." Among the speakers will be L. W. Baldwin, President, Missouri-Pacific Railroad; E. E. Pershall, Vice-President, T. J. Moss Tie Company, Missouri; Devere Dierks, Dierks Lumber Company, Arkansas; and John Rue, Champion Fibre Company, North Carolina. The subject of the evening session on Saturday will be "Public Education In Forest Fire Prevention and Timber Growing." It will be opened by S. L. Horn, Editor of the Southern Lumberman, with presentation of the broad problem of public education as a means of stopping the practice of woods burning which stands as a barrier to forest regeneration in the South. State Foresters and representatives of timberland owners who are developing progressive methods of public education will tell of the work they are doing and the methods which are proving most valuable.

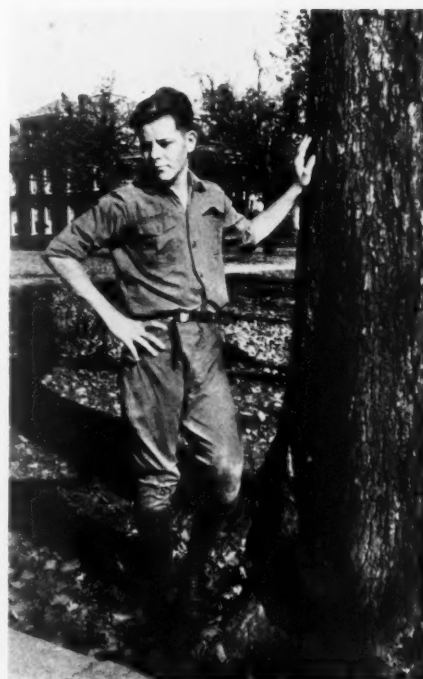
A True Tree Lover

By ROBERT M. WILSON

THOUGH blind from birth, David McDaniel, a fifteen-year-old student in the Illinois School for the Blind, at Jacksonville, is able to correctly name twenty-one of the variety of trees native to Illinois through the feel of the bark, the leaves or the fruit.

David was born in Hamletsburg, a small village on the Ohio River in Pope County, and received his first instruction in woodcraft from an older brother. During the past, in company with other blind students, members of Boy Scout patrol, he spent much time in the woods, closely applying himself to nature study, especially in getting acquainted with the different varieties of trees.

Not long ago the "Tree Book of Illinois" was published and it contained a description of ninety-nine trees native to Illinois. David made application to the Department of Conservation for a copy, stating he was making a study of trees and would get another boy to read the book to him. Ever since then the little book has been one of the most cherished possessions of this blind student, who carries it with him constantly on his hikes with the Boy Scout troop.



David McDaniel

Bringing the Forest to the Farmer

By J. A. COPE

TO call the attention of the several thousand Farmers' Week visitors to the importance of the woodlot in the farm layout, a section of an ideal woodlot was set up indoors by the Forestry Department at Cornell University this winter when zero temperatures and snows were not conducive to a careful study of woodlots in their native haunts. The species selected as being typical crop trees for average farm conditions in central New York were hard maple, white ash, basswood, hickory, red oak and black cherry. Altogether there were ten of these crop trees in the woodlot ranging in diameter from three inches to sixteen inches and in addition saplings and seedlings just pushing up through the forest floor. Outside the woodlot, emphasizing the point that they have no place in a well-managed woodlot, were standing three weed trees—beech, ironwood and hornbeam.

The ten crop trees and the three weed trees were numbered consecutively and a tree identification contest arranged. Only twelve visitors were able to identify them all correctly out of the one hundred and two that made the attempt.

A total of 2,340 acres of woodland were represented by the men identifying the trees. It is anticipated that when they returned home the demonstration will have stimulated them to look for the crop trees in their own woodland

to see if they are having the best chance to develop to the exclusion of weeds. The old rail fence added a finish to the picture, but served a still more important purpose. It emphasized the fact that it is necessary to fence a woodlot



Studying the woodlot indoors, through the medium of the typical exhibit set up by the Forestry Department at Cornell

from stock, just as a corn crop is fenced. Over fifty per cent of the woodlots of New York State at the present time are heavily grazed, so fencing ranks with good distribution of valuable species of various ages in bringing about a well-managed woodlot.

Hearings on McSweeney Bill Arranged

AT the request of Representative John R. McSweeney, of Ohio, the House Committee on Agriculture has granted four days beginning Wednesday, February 29, for hearings upon the McSweeney bill, H. R. 6091. This will give ample time to present needs for the definite authorizations covered by the measure in nine different fields of forest research. At the time of going to press, the Senate Committee on Agriculture and Forestry had been asked to hold similar hearings on February 27 and 28. The Senate bill, introduced by Senator Charles L. McNary, of Oregon, is designated S. 1183. Arrangements were also under way for presentation of the matter to the President, and to the Director of the Budget, on February 28 or 29.

The National Forestry Program Committee will be in general charge of the hearings.

Widespread interest is manifest in this measure, touching, as it does, experiment station work, diseases and insects affecting forest trees, wild life of the forests, fire-weather forecasting, watershed protection, utilization of forest products, land use and range investigations. The research work of six different bureaus is involved, including the Forest Service, the Bureau of Entomology, the Bureau of Plant Industry, the Bureau of Biological Survey, the Bureau of Agricultural Economics, and the Weather Bureau.

Prominent among the groups which have endorsed the bill are the Society of American Foresters, The American Engineering Council, The American Forestry Association, the American Paper and Pulp Association, The National Lumber Manufacturers Association, and more than thirty others.



Sapling Sam's Scrapbook

HE WAS A LOGGER

Out in Missoula the Forest Service boys tell about a big lumberjack employed at the Savenac Nursery who asked the ranger for his time. When questioned as to his reasons for quitting he said: "Oh, hell, the timber's too damn small."

FLOODS—TREAT 'EM ROUGH

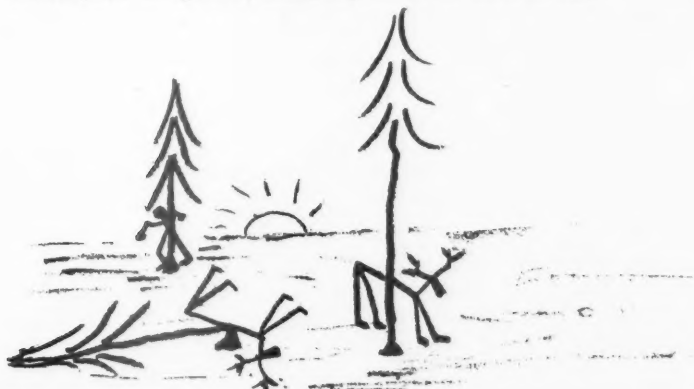
The *Paper Mill* observes, concerning the recent New England flood, that such disasters "can be definitely relegated to the limbo of remote contingencies" and then discusses adequate dams, sizable dams, sound dams and other dams, following all of this with a paragraph which starts "Roughly Speaking."

CÆSAR'S NATURAL HISTORY COMMENTATORS

R. F. Hamill obligingly digs up this story of an ancient forerunner of the modern hugag, well known to all lumberjacks. It is published, very appropriately we think, in *Our Dumb Animals*.

In his wanderings about the world Julius Cæsar came in contact with many strange tribes of barbarians, and learned of many strange and curious animals and natural wonders. None of the animals he describes in his books is so marvelous, however, as the fabulous animal he calls an elk, about which any schoolboy may read in "The Gallic Wars."

"There are animals, too, which are called elks. In shape and in the varied color of their skins they resemble goats, but are somewhat larger. They have no horns, and their legs are without joints or ligatures; hence, they do not lie down to rest,

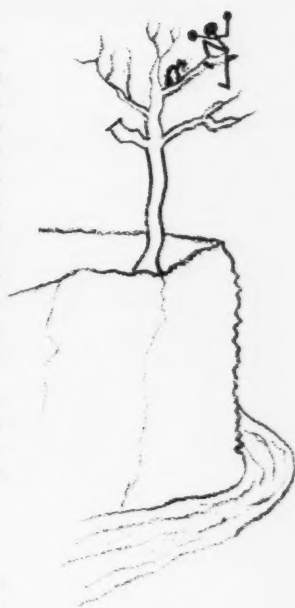


and if thrown down by accident they cannot raise themselves up. Trees are their beds; the animals lean against these supports, and thus reclining but slightly, they take their rest. When the huntsmen have discovered the abode of these animals from their tracks, they either undermine all the trees at the roots, or cut into them so far that the parts above have nothing more than the appearance of standing. When, according to habit, the animals lean upon the unsupported trees their weight tips the trees over and the animals themselves fall along with them."

VALUABLE ADVICE

The *Lumber Cooperator* declares that Sam, while walking in the woods late one afternoon, was surprised by a wildcat, which proceeded to chase him to the top limbs of a large oak tree on the edge of a deep canyon. The wildcat was climbing as fast as Sam, and soon had forced him perilously near the decaying end of a long limb extending beyond the edge of the precipice. Sam decided it was time to remonstrate.

"Wildcat," he said impressively, "Wildcat, does yo' make me go one inch furdah, yo' is gwine to have to jump a long ways fo' yo' suppah!"



MORE EVOLUTION

Seems like the late evolution squabble was in Tennessee but *Kentucky Highways* contributes the following:

A balky mule has four-wheel brakes,
A billy goat has bumpers;
The firefly is a bright spotlight,
Rabbits are puddle jumpers.
Camels have balloon-tired feet,
And carry spares of what they eat;
But still I think that nothing beats
The kangaroos with rumble seats.

EMBARRASSING MOMENTS

I was seeking for some 1924 information on the eradication of gooseberry bushes to control white pine blister rust. Imagine my embarrassment to find it in the current file.

GENTLY AGGRESSIVE

This is an age of brains. All types of work must be thought out and carefully planned. Gloomy forebodings about the uselessness of enthusiasm are even creeping into my correspondence. Pawing over the morning's mail to find something to fit this space, I glean from a California letter that certain things "do not fit into the picture, and will not if the bull is taken by the horns in a careful way."

Through the Trees

By FRANK A. WAUGH

YOU can see more in a landscape by covering up a part of it.

This statement is not a joke, a conundrum, a riddle, nor a plank from a political platform. It is merely a well-known principle of landscape gardening. It applies to buildings, no matter how monumental, to mountains, lakes, and to all the major items of scenery.

It may be easily and emphatically verified. Go out with a camera and make a few photographs along any street; or visit the parks and try to get good pictures of scenery; or motor along the country roads, kodaking as you go. The results will be convincing if thoughtfully examined.

Or without waiting for the demonstration of personal experiment, just look over the photographs reproduced herewith. Look at those two new houses in Palos Verdes, both raw and unfinished, but one of them nestled amongst the eucalyptus trees, framed by their stems and caressed by their shadows. Which one looks like a promising home, and which like an underdone

job of stucco? Which house will sell first for the most money? No one will need two guesses.

Or take the case of the little Massachusetts pond. It is in fact only a pool in the woods, but a very pretty one if you

look at it rightly, that is, through the trees. The two pictures were made the same day, within five minutes of each other. One shows more of the pond than the other, but obviously the pond itself is more acceptable to the eye when we see less of it, when it is cut to strips by the long reflections of the marginal trees. Thus we observe that even the unsubstantial shadows of the trees may have a substantial value.

Or once again have a look at Massanutten Mountain through the tall red cedars, ranged so primly along the road to Elizabeth Furnace, Virginia. The opposition of the vertical lines makes the sweeping significant contours of the mountain build up into an intelligible topography. The whole picture has a "decorative value," as the painters say, which it couldn't have without the trees.

Now, all this is the A B C of land-



A new house at Palos Verdes, California—Stark naked and ashamed of itself, raw and ugly without the softening effect of trees



Another new house at the same place: but, nestled against eucalyptus trees, it is framed by their stems and caressed by their soft shadows



A forest pool in Massachusetts. Unrelieved by any trees in the foreground, the naked water is harsh and unlovely

scape architecture. The landscape architect knows that he has to break up and partially conceal his best pictures in order to realize their full pictorial value. If he is wise and has his way he will plant good lusty trees in the grandest public square, both for the blessing of shade and for the esthetic improvement of the picture. One could remember a number of public buildings in New York and Chicago which would look better through the trees—not to mention some which would appear best beyond a mile of impenetrable forest.

When it comes to private buildings—to the homes where people live—the ameliorating effect of the tree trunks and crowns and shadows is all the more apparent. The need for such relief is overwhelming. How dreary, indeed, is that



Contrast it, then, with this pool, bordered by young trees. The quiet surface of the water is painted with beauty by the shadows of the trees



Massanutten Mountain, Virginia, seen through the line of red cedar trees along the public road. This gracious scheme of roadside planting is very common throughout the Shenandoah Valley

block of newly built houses (we can hardly call them homes), where not a tree nor a shrub has yet raised its head! The substitute forest of telephone and electric service poles hardly fills the requirements! Fortunately, there are some others of the new subdivisions where the standing trees have been preserved with intelligent solicitude and where the new houses glimmer through the trees in a much more friendly aspect. Lots ought to be worth twice as much in the latter neighborhood. Yet within the last year I have seen, in Washington, D. C., large areas of land being "improved" by steam shovel, every tree and bush removed, to make room for cement, asphalt, stucco, and all the unmitigated crudities of real-estate "development."

Yes, there are men, lots of men, the world over, just as blind and ignorant as that. They have never seen, and most likely never will see anything but real estate, bill boards, electric service, poles, sewers, cement curbs, red mud, first mortgages and many other red-hot "improvements." They have never seen Massanutten Mountain through the trees, but one would expect them to see the new stuccoed houses of Palos Verdes through the eucalyptus boles, especially when looking through those trees they can see several thousand dollars more on the price of each house and lot. And that's what we mean by saying that you can see more in a landscape by covering up a part of it.

Snapshots of European Forests

By An American Forester



II. Swiss Forest Thrift

By JOHN D. GUTHRIE

THE sound sense of the Swiss people is evident in everything everywhere in their wonderfully interesting and beautiful country. They have not many natural resources other than their forests, their waterpower, and their scenery. Switzerland's greatest assets are the indomitable perseverance, resourcefulness and thrift of her people.

Normally Switzerland produces all the wood it needs; of the total productive land, thirty per cent is permanently in forests. In the United States twenty-five per cent is in forests.

Switzerland's land area is about ten million acres, of which two and one-half million acres are forest lands. Fifty-five per cent of her productive forest land is in the higher altitudes. There is considerably more valley or farming land in Switzerland, however, than one

would think; the country is by no means all Alps, though it is by far more of a pastoral than an agricultural country. Her mountains, however, are rugged and upstanding, and it is marvelous how trees do grow on the almost perpendicular slopes. In fact, one of the most important functions of the forests is the protection of streams and steep mountain slopes. But for the fact that the Swiss have been careful to keep forests growing on these steep mountain sides through centuries, the rough, rock surfaces would now be bare. But because the Swiss have long been "forest-minded," their

mountains are not only covered with commercial forests, but thick humus and rich forest soils. Avalanches, earth and rock slides would undoubtedly occur frequently were the protective cover of forest entirely removed. We were wading through eight inches of new snow in the forests near Thun and also on the heights above Interlaken in May. I thought of our own high mountain country, bare and unproductive, such as parts of Colorado, the high Sierra, the Cascade summits. Verily, Switzerland's forests hold her mountains up and her taxes

down! And here it may be remarked that taxes in parts of Switzerland are based on site quality and not on volume of stand, and site quality is determined by height growth. The entire stand is calipered every ten years for the revision of the forest working plan.

The Swiss are a hospi-

table people. We were treated splendidly by the Swiss foresters, who were most cordial and obliging, from Interlaken, where we first met them, to Basle, where we bade them goodbye. One of the high spots in entertainment of our entire European trip occurred in a Swiss forest. After going through a forest for several hours one day, as we turned an angle in the trail, down a side-trail came a sort of pushcart wheeled by two forest rangers in uniform, of course. But what was in the cart immediately interested us. It was loaded with sandwiches, cigarettes, cigars, beer, and cham-



Peasants taking out fuel wood from the great city forest of Zurich, which has been owned by the community for 600 years

pagne! The afternoon had been warm, the walk rather strenuous, the technical problems absorbing, so we rested for a while and discussed forestry, very delightfully. The unregenerate ones of us Americans decided that this was a nice little custom which should have been introduced into our forests years ago.

Steep mountain sides are no bar to Swiss ingenuity. There were many cableways for getting logs out of what we would have called absolutely inaccessible places. They were all-gravity cableways, designed, installed and operated by forest officers. The foresters were selling this material, an amount only equal to the annual growth, delivered at the roadside, or railway in the valley; otherwise they could not dispose of it. If they could get a buyer for the trees on the stump, well and good. If not, then the foresters would cut the timber and get the logs down where they were salable.

There were many forest nurseries, all small, all in the forest, and while perhaps not as prim and as well cared for as ours, they were nevertheless furnishing seedlings as needed and at very low cost. Some of these nurseries were high up in the mountains and, in order to have a supply of manure for keeping up the soil fertility of the seed beds, there was at least one stable at each nursery. Here a few cows were allowed to be kept by some farmer during the summer in order to accumulate a supply of compost. The cows were kept in the barns and fed on green hay cut in small meadows near by, meadows of grass, and alpine wild flowers. Many cattle and milk goats feed in the small alpine pastures or on wet meadows throughout the forests. The Swiss seem to have worked out a nice balance between live stock and forests; they do not go through a periodic hysteria, as we seem to do, over sheep and seedlings. The farmers and mountaineers *must* have cows and goats for milk, butter and cheese, for there is little or no agricultural land (other than hay land) in the higher mountains. So land which will not erode, or is too wet for tree growth, is grazed. All this has come about through the common sense of the Swiss

people themselves. They know the value of forests and also that they must have pasture lands for butter and cheese production. Wild flowers? Oh, yes, beautiful ones, and many were being eaten by cattle and goats, many were being cut for hay. No one seemed excited over this fact, not even the American tourists. Excitement or silly sentimentality would get nowhere with the Swiss—they know their problems and they know what they are doing to solve them.

They do not destroy their forests, neither their wild flowers, their mountain sides, nor their fishing streams; but they are using them all sensibly and with rare good judgment. In Switzerland the prosperity of the forest is intimately interwoven with the prosperity of the people.

There are forest roads built primarily to take out forest products. One, in the forest of Thun, ten feet wide, in a mountainous region, was well built; good grades, with many fills, and costs \$500 a mile. It was built entirely from receipts from the forest, which averaged \$20 an acre annually. Of course, we saw and went through and were given figures about the famous Sihlwald, the city forest of Zurich, which is not a city forest, but has been owned by the community for at least 600 years. For over 500 years it has been under some form of forest management. The forest proper contains some 2,600 acres. The highest point within the forest is 3,050 feet, the lowest 1,500 feet. Up to about 1,600, conifers predominated, but the forest was from then on converted into beech, for the fuel supply has always

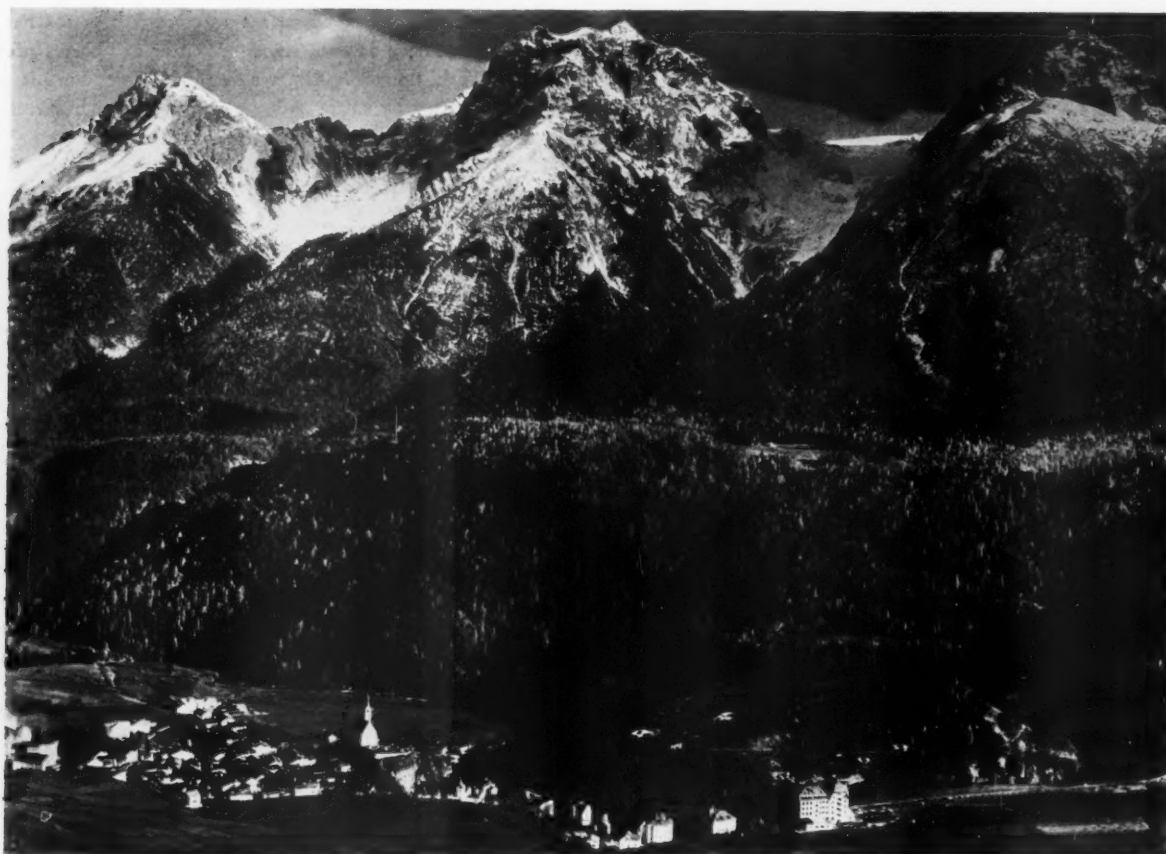


A Beech stand on the famous Sihlwald, the great forest of Zurich, where some form of forest management has existed for over five hundred years

been an acute one in Zurich. Now, however, the tendency is to reconvert it into an evergreen forest. This forest has brought in a net return of over \$12 an acre for many years.

We saw other city forests as well, where they seem to have solved the problem of dual use of such tracts, combining the city park with a commercially managed forest.

Rustic shelters, rustic seats, more and better roads and trails, and more signboards were in evidence in many of these publicly-owned tracts, but the forest was also managed for profit and everyone seemed satisfied.



The mountains of Switzerland are rugged and upstanding, and it is marvelous how trees grow on the almost perpendicular slopes. "Verily," the author says, "the forests hold Switzerland's mountains up and her taxes down"

The outstanding things in Swiss forestry are the care and real thought given by the local forest officers to their forests, their real forestry knowledge, the great difficulties of transportation of wood products from the high mountain

forests, and the complete wood utilization seen everywhere throughout the country. ["The Black Forest of Germany," the third article of Maj. Guthrie's series, will appear in the March issue.—Editor.]

Senate Committee Reports Favorably on McNary-Woodruff Bill

FOLLOWING a hearing on January 5, the Senate Committee on Agriculture and Forestry voted unanimously to report favorably on the McNary-Woodruff Bill with an amendment to make available as early as possible funds for taking up an option on valuable forest land in New Hampshire. The amendment was suggested by Senator Norbeck, of South Dakota, and the forest tract referred to adjoins the White Mountain National Forest and is held under option by the National Forest Reservation Commission. This option expires April 1, 1928.

While the total amount which would be authorized by the bill as amended remains unchanged, the program would be reduced from ten years to eight years. The amendment would make the bill read as follows, in part: Available upon passage and approval of the bill, \$1,000,000; available July 1, 1928, \$2,000,000; available July 1, 1929, \$3,000,000; available July 1, 1930, \$4,000,000; available July 1, 1931,

\$4,000,000; available July 1, 1932, \$5,000,000; available July 1, 1933, \$5,000,000; available July 1, 1934, \$5,000,000; available July 1, 1935, \$5,000,000; available July 1, 1936, \$6,000,000. These funds total \$40,000,000, and would be available until expended.

During the hearing, ten witnesses were heard, Senator Hiram Bingham, of Connecticut, spoke briefly for his constituents and presented for the record a letter from the Connecticut Forestry Association; Colonel W. B. Greeley, Chief of the Forest Service, reviewed the work accomplished under the Weeks Law and explained the purpose of the McNary-Woodruff Bill, adding that its prompt passage would simplify and speed up the work under the Clarke-McNary Act. John W. Blodgett of Grand Rapids, Michigan, former President of the National Lumber Manufacturers Association, urged the program proposed by the bill as a proper federal function in the Lake States and the Gulf pine belt.

J. S. Holmes, State Forester of North Carolina and former President of the Southern Forestry Congress, emphasized the importance of the National Forest purchase in his own State and elsewhere in the South. George D. Pratt, President of The American Forestry Association, cited the need of more forests in our heavily populated half of the country and urged that the committee speed up the purchase work by pushing the bill. P. E. McKinney, of the Izaak Walton League, spoke of the need of more forests to increase wild life and recreation facilities. Judge H. C. Fabyan, of Boston, represented a number of New England organizations,

including the New England Council, the Appalachian Mountain Club and several of the large chambers of commerce. R. S. Kellogg spoke for the National Forestry Program Committee and warned the committee that lost time had meant lost timber growth in the past and that the only way to do this work was to plan its financing well ahead. L. N. Wallace, Executive Secretary of the American Engineering Council; R. Y. Stuart, President of the Society of American Foresters, and Fred Brenchman, of the National Grange, stated forcefully the position of their organizations.

A Paper Company Buys from the Farmer

(Continued from page 89)

purchase pulpwood during these idle periods just as fast as he can bring it in. The farmer is paid every Friday afternoon, and is thus enabled to hire labor without advancing any capital.

The corporation insists that the wood be barked as soon as it is cut, for in this way it lasts longer on the yard and makes it possible to carry a larger supply of wood. To the farmer it means that any wood cut can be immediately brought to the mill and turned into money. Whereas formerly farmers would cut a large quantity of wood and leave it in the woods for three months, where it was very apt to become worm-bark; and then, if they were busy farming, there was a possibility that they might not be able to deliver all the wood that they had cut. Any wood not delivered to the mill would be left in the woods for over a year and would become unfit for any purpose. The farmers are given thirty days' notice when the corporation intends to stop taking wood, thus giving them an opportunity to deliver their cut and clean up the woods.

The corporation is instructing and urging the farmers to use the small branches for fuel, thus keeping the woods clean; and also teaching them to thin out the denser growth, thereby improving their stand of timber. Demonstrations are held periodically to illustrate to the farmers the most efficient way to thin their woods. These demonstrations are made by the foresters of the State Extension Service, and it

is believed the corporation has thoroughly convinced the people of that vicinity that the Extension foresters and the State Forest Service are always ready and willing to assist them in working out plans for handling their wood-lots.

Last year the Halifax Paper Corporation had 126 white and 176 colored people hauling wood to its mill. It has been estimated that the pulpwood brought in from these various farmers is not greater than the annual growth of young trees.

One of the outstanding practices of the corporation is that it does not buy pulpwood from speculators who buy on the stumpage basis and cut everything down, ruining a large proportion of the young growth.

The corporation did not purchase any wood from September to December in 1927, and still had a satisfactory supply of wood on the yard. It now expects to permit the farmers to haul pulpwood until they are ready to plow in the spring of 1928, when they will have purchased enough wood to last through the balance of the year.

This corporation has been the medium through which the farmers within a radius of twenty-five miles of the mill have been able to keep busy twelve months in the year, and to raise another money crop in addition to cotton. The amount of money distributed to the farmers has enabled many of them to pay for their fertilizer and other expenses connected with their cotton crops without going into debt.

PLANTING ACORNS FOR A NATION'S DEFENSE

In 1827 John Quincy Adams, then President of the United States, and fully aware of the significance of sea power at that time, designated Santa Rosa Island, in Pensacola Bay, off the Florida Coast, as a naval operating base and ordered 300,000 acres planted with acorns. The reason for this notable episode in American history and the adventure surrounding it is told in the March issue of *AMERICAN FORESTS AND FOREST LIFE* by Jenks Cameron, in "Mr. Adam's Acorns." The development of the memorial tree movement, its history and significance to the future of the nation, is delightfully analyzed in "Trees as Memorials," by Francis Edmund Whitley. "Fires versus Land and Snowslides," by Chester M. Archbold, an interesting and instructive comparison of timber destruction on the Tongass National Forest, in Alaska; "The Four Thousand Dollar Dog," by Walter P. Taylor—a fascinating narrative of a porcupine-killing dog in a thrilling hunt in the wilds of New Mexico; "The Black Forest of Germany," the third of the series "Snapshots of European Forests," by John D. Guthrie, and "What Deer Eat," by Joseph Dixon, announced for February, but deferred for this issue, are just a few of the good features of this number.

AROUND THE STATES



Col. Roosevelt Named Chairman of American Forest Week Committee

Colonel Theodore Roosevelt, of New York, has been named chairman of the American Forest Week Committee, to succeed Hon. Frank Lowden, who has been chairman since the organization of the Committee, but who recently asked to be relieved from further service. April 23 to 28 are the dates appointed for American Forest Week in 1928, President Coolidge having promised to issue a proclamation of announcement.

At a recent meeting of the Executive Committee a sub-committee was appointed to work out plans for cooperation with Canadian Forest Week authorities and especially to arrange for exchange of speakers with Canada during American Forest Week.

Society of American Foresters Meets in San Francisco

Characterized by practical discussions of industrial and private forestry, the twenty-seventh annual meeting of the Society of American Foresters was held in San Francisco late in December. Ray Lyman Wilbur, president of Stanford University, California, addressed the meeting on the industrial and commercial growth of the countries bordering the Pacific Ocean and their increasing dependence upon the natural resources of the western United States.

Other noted authorities to speak before the session included Dean Henry S. Graves, of the Yale Forestry School, who emphasized the need of national action in repealing out of date land laws. David T. Mason, of Mason and Stevens, forest engineers, brought out that federal action was needed against

overproduction of lumber, so that such action might be directed toward a policy of continuous production. His plan called for the inclusion of National Forest areas with areas of privately owned timber, to make logging units of sufficient size to warrant a continuous production plan of management, and thus put industry on a more stable basis. Others to speak were R. Y. Stuart, retiring president; Professor Walter Mulford, of the Division of Forestry, University of California; Raphael Zon, director, Lakes States Forest Experiment Station; Dean Hugo Winkenwerder, University of Washington; C. S. Chapman, forester, Weyerhaeuser Timber Company; Dean F. G. Miller, University of Idaho; Swift Berry, Michigan-California Lumber Company; Dean George W. Peavey, Oregon State College; J. B. Woods, forester, Long-Bell Lumber Company; E. T. Allen, forest economist, Western Forestry and Conservation Association; C. M. Granger, United States Forest Service; S. B. Show, United States Forest Service; S. R. Black, secretary, California Forest Protective Association. Papers were read from Wilson Compton, secretary, National Lumber Manufacturers Association, and C. F. Billings, assistant manager, Clearwater Timber Company. The report of the committee on a survey of private forestry practice was read for Shirley W. Allen, Forester, The American Forestry Association.

The meeting recommended that the Society endorse and cooperate in lumber trade extension provided the work tied in closely with growing new crops of wood.

The following officers were elected for 1928: President, Richard T. Fisher, Director of Harvard Forest; vice-president, Ovid M. Butler, secretary of The American Forestry Association; secretary, Ward Shepard,

United States Forest Service; treasurer, Samuel B. Detweiler, Bureau of Plant Industry, United States Department of Agriculture; executive council, R. Y. Stuart, retiring president, and assistant forester in charge of Public Relations, United States Forest Service.

Western Forestry Meeting

The annual meeting of the Western Forestry and Conservation Association will be held February 20 to 22, at Tacoma, Washington. All private, State, Federal and British Columbia timber and protective agencies will be represented. According to the program, special attention will be given to the approaching government study of forest taxation in the Pacific northwest. Other subjects to be discussed include the influence of public timber disposal on private forest management; reforestation by lumbermen; cooperative fire prevention under the Clarke-McNary law; timber insurance, and forest research work.

New Mexico Creates Nine New Game Refuges

New Mexico has authorized the creation of nine new game refuges. The largest, 59,520 acres in Eddy County, has been established for the protection of deer and prairie chickens. Two others of 40,000 acres each in Chavez County are for deer.

In the San Andreas mountains in Dona Ana County, a refuge has been set aside for one of the three remaining herds of wild sheep in the State. A small refuge was created in Hildage County for protection of Javalina hogs.

Secretary Jardine Amends Alaska Trapping Regulations

Amendments to the regulations under the Alaska Game Law, to become effective April 1, 1928, have been adopted by Secretary Jardine and made public by the United States Department of Agriculture. The new amendments were adopted on recommendation of the Alaska Game Commission, as concurred in by officials of the Bureau of Biological Survey. Most important of the provisions is one continuing the close season on beaver on the Kenai Peninsula, which was to have opened on April 1. This action was taken because of the present scarcity of beavers in that region, a condition that has come to light through recent investigations.

Another provision requires that all skins of beavers and martens legally imported or taken shall be sealed by the Alaska Game Commission or its authorized representatives within ninety days after taking or importing. This amendment was made to clarify the intention of the existing regulations, which had been interpreted in some quarters to require the attachment of a seal within ninety days after a skin came into a person's possession.

When skins are to be shipped, the packages containing them must hereafter be marked on the outside to show the serial numbers of the seals of any beaver or marten skins in the package, and these numbers must also be entered on the reports of shipment that are required by law.

Proposed Calaveras Park

A State park which would include the north and south groves of the Calaveras redwoods, on the North Fork of the Stanislaus River, California, has been proposed in the first annual report of the Calaveras Grove Association. This area would include 6,120 acres. During the past year the association began a survey of the entire area to determine the amount of timber on the various land holdings. They have also been in touch with various land owners and the United States Government for the cession of certain lands in the canyon of the Stanislaus.

Maine Uses Airplane

An airplane was used by the Maine Forest Service in its fire protection work this year and was found very useful in locating small fires and in reconnaissance of large fires. It proved especially helpful in the case of a 10,000-acre fire. Twice each day an observer flew over this fire and dropped at headquarters a map showing its progress and the points where it was burning most violently. In the opinion of forest officers it was largely owing to the use of the plane that they succeeded in subduing the fire.



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Forest Products Laboratory Testing Paint

In spite of the fact that protection of the wood is universally considered as one of the primary reasons for painting exterior woodwork, no serious effort has heretofore been made to determine experimentally how long coatings of paint continue to protect wood against deterioration, according to F. L. Browne, chemist in the Forest Products Laboratory of the United States Forest Service.

Mr. Browne recently analyzed the results of a series of tests on the durability of paint coatings, some of which have been under way as long as six years. A more convenient and rapid technic embodying the principles determined in these tests is now being developed in the Laboratory.

The tests included exposure of wood panels coated similarly on all surfaces to sixty per cent relative humidity for two weeks; ninety-five to one hundred per cent relative humidity for two weeks; sixty per cent relative humidity again for two weeks; outdoor exposure facing south for six weeks. The last step secures the actual weathering, while the second step provides the means for measuring the absorption of water as a result. By weighing the panels before and after exposure to the ninety-five to one hundred per cent humidity, the amount of moisture absorbed could be determined.

Previous tests, says Mr. Browne, have been prone to ignore such evidence of wood weathering as wood checks, loose grain, cupping, warping, and loosening of nail fastenings, on the ground that they are "wood defects" rather than "paint defects." As a matter of fact, defective paint may often be responsible for bringing about, in some measure, what are thought to be defects in the wood.

National Conference of Forest Schools

On December 15, a Conference of the forest schools was held at Berkeley upon the invitation of the University of California. Out of twenty-two schools in the country, fourteen were represented by faculty members and all but three had alumni present. The total registration was one hundred and seventy.

Fundamental training as against that of the vocational type was urged in the meeting given over to faculty members.

Recent forest school graduates were given a chance to air their opinions of school training as they look back on it and many of them emphasized the fact that personality and tact meant much in securing opportunity to use what they had learned in school.

In the general discussion, which was entered into by Federal and State officers, privately employed foresters, national park, county, and high school men, weakness in teaching forest protection in forest schools was charged. Many comments were made upon the fine opportunity for research in this field.

The approval of the Conference was given to the recommendations of the National Academy of Sciences that research in fields of science basic to forestry should be encouraged.

Empire State Forest Products Association Meeting

Urging that the talent and brains of the forest industries give greater attention than heretofore to the problems of distribution and merchandising of forest products, Dean Franklin Moon, of the New York State College of Forestry, Syracuse University, speaking before the twenty-second annual meeting of the Empire State Forest Products Association, declared that there must be a restriction of output in forest products if the nation is to avert disastrous overproduction.

The following officers were announced for the Association for 1928: president and director, George W. Sisson, Potsdam; vice-president and director, George N. Ostrander, Glens Falls; director, W. C. Hull, Tupper Lake; director, C. L. Fisher, Lyons Falls; director, E. A. Sterling, New York City; Thomas H. Stirling, Mechanicsville; director, John H. Hinman, New York City.

Idaho Studies Durability of Pine

Factors that affect the durability of *Ponderosa* pine, commonly called western yellow pine, and western white pine, the two principal Idaho trees used for lumber, will be determined in a research project to be undertaken at the Idaho School of Forestry this year, according to Dr. E. E. Hubert, professor of forest products at the school.

The research will be done by Bernard A. Anderson.

In the project, Dr. Hubert explains, the toxicity of hot and cold water extracts of wood will be tested to determine if there is in the timber any toxic matter that in solution would kill fungus growth. Another phase of the project will be to see whether ordinary kiln drying of timber will force out any volatile products that might be useful in resisting the fungi. When wood is heated to 180 degrees, which is the case in kiln drying, certain volatile matters come off. The research leaders want to know if to leave these volatile matters in the wood would help to prevent decay. A precedent in the kiln drying phase of the study is found in recent experiments with western red cedar.

Water Submersion Prevents Insect Injury

The damage caused by the Lyctus powder-post beetle is one of the main sources of loss suffered by firms making such wood products as mallets, mauls, or implement handles. This insect attacks untreated wood and renders it unfit for use.

The Bureau of Entomology has been carrying on experiments for the past few years to develop protective practices, and it has been found that if hickory, oak and ash wood are submerged in water before being milled, insect injury is greatly reduced. This advice has been followed with exceptional results by a firm in Virginia. Damage to their green and seasoned stock had formerly ranged from 15 to 90 per cent, but after three years' trial of the recommended practices, it is now only one or two per cent.

400,000 Slogans

Nearly 400,000 slogans from all parts of the world have been received in the \$15,000 prize contest of the National Lumber Manufacturers Association.

The last two days of the contest, which closed December 15, approximately 100,000 slogans came in and hundreds rushed their last-minute entries to the judges by telegraph, cable and air mail. It is estimated that 10,000 slogans arrived by special delivery. Over 1,700 pieces of registered mail and 200 wires, including cables from Honolulu, were received.

Entries came from many foreign countries, among which are Persia, England, Scotland, Wales, Switzerland, France and Italy. Every State in the Union, all of America's outlying territories and every Canadian province are represented.

Raising Minks in Captivity

Comparatively few persons are raising minks in captivity, even though the fur has sold for high prices during the past ten years, according to Frank G. Ashbrook, of the Biological Survey, in a leaflet on "Mink

Raising," just issued by the United States Department of Agriculture. A keen interest has been manifested in mink farming, he says, since the beginning of the present century, but it has been spasmodic rather than sustained.

Senator Smoot Introduces Grazing Bill

Senator Reed Smoot of Utah introduced in the Senate on December 19th, a bill "to promote the development, protection and utilization of national forest resources, to stabilize the live stock industries and for other purposes." Section one of the bill would define the policy of Congress in promoting the conservation of the natural resources of the National Forests to provide for the protection and development of the forage plants growing thereon, and for the beneficial utilization thereof by grazing by live stock under such regulations as may be consistent with the purposes of the forest. Section Two would authorize and direct the Secretary of Agriculture to make grazing contracts with the owners of live stock, these contracts to be for a period of ten years, except in special cases deemed undesirable, either by the Secretary or by the contractor. In granting contracts, preference would be given to holders of existing grazing permits or to their successors in interest, issued in recognition of claims established before or subsequent to 1905. Section Two also provides that the Secretary "shall make such grazing contracts in a way to entitle a holder thereof to the full grazing use of a specified or described area of land," to the end that grazers may be encouraged to conserve and protect all the resources of the forest.

Section Three would establish a Grazing Board consisting of two members from the Department of Agriculture, two members from the Grazing Industry, and one member to represent the public. The four members first mentioned would be appointed by the Secretary, and these four members would appoint a fifth member. The Board would be required to meet at least once annually "to determine and announce the charges to be collected by the Secretary from the holders of grazing contracts." The Board would also be empowered to render decisions in respect to appeals referred to it by the Secretary from all holders of forest grazing contracts.

Section Five provides that ten per cent on the gross receipts from grazing on the National Forest, would be made available for expenditure by the Secretary in improving grazing conditions and better utilization of the forage. The remainder of the grazing receipts, after deduction by the Secretary of the cost of administering grazing in the National Forest, would be turned over to the State to be expended for the benefit of public schools and public roads of the county or counties in which the National Forest is situated.

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North Carolina Has Fawn Nursery

National forest officers in charge of the Pisgah Game reserve at Asheville, North Carolina, have started a unique nursery. Twelve motherless fawns have been raised there by dint of boundless patience on the part of the wardens and with the aid of a large quantity of cows' milk.

Early this season the rangers noticed a number of fawns which seemed to be abandoned by their mothers. These they caught and took to the warden station, where a small pen was constructed to confine them. Within a short time it became necessary to enlarge their quarters, as more fawns were found on the preserve. The theory of the wardens is that each of the fawns was the abandoned one of twins, the presumption being that some does are reluctant to care for twins.

There are 3,500 deer on the Pisgah preserve and hence the number of orphans during 1927 was considerable. Several fawns were picked up in the chicken yards and in the enclosures of the mountaineers on whose premises they had wandered from the forest. It is illegal in North Carolina as in most states to retain possession of wild game, birds or animals of any description, and hence these captured fawns were taken into custody by forest rangers.

Seek Historic Canal for Park

Acquisition of the rights to the historic Chesapeake and Ohio Canal by either the District of Columbia or the Federal Government separately, or the combined purchase of the property by the two governments with a view to including it in the park and boulevard system of Washington, was recently advocated by the citizens of the nation's capital. The resolution called for the purchase of the property from Georgetown to Great Falls, or possibly as far as Cumberland, Maryland. The resolution was forwarded to the District Commissioners.

Spring Flowers in Winter

It is unfortunate that more people do not know the ease with which branches of spring-flowering shrubs may be brought to bloom indoors during the winter, says the bulletin of the Missouri Botanical Gardens. During February and March, when anything green and growing is appreciated, they make interesting and, in some cases, very beautiful decorations for the home.

If the best results are to be obtained certain simple precautions need to be followed. In the first place, the branches selected should be well supplied with flower buds. In most shrubs the flowers are produced only from certain specialized buds, and there is no general rule by which these may be told from the leaf buds. In some species the leaf

buds are set between flower buds, while in others the reverse is the rule. Generally, the flower buds are larger and less closely appressed to the twigs. Sometimes, as in the pear and apple, they are borne on short, crooked side branches, called spurs by nurserymen. The form of the branches should be considered when selecting sprays for forcing. They will be bare, or practically so, for at least the first week, and the flowerers, when they do appear, are usually smaller than those which open naturally out of doors. The branches may be of any size, however, from small twigs to six-foot sprays.

All that is needed to force the sprays is a jar of water, ordinary room temperature, and a little sunlight. Quicker results may usually be obtained if the entire branch is soaked in warm water for ten to fifteen minutes when first brought into the house.

Sportsmen Win Reforestation Cup

A silver loving cup offered to sportsmen planting the greatest number of forest trees in New York during 1927 has been awarded to the Shawangunk Fish and Game Association, of Middletown, New York. The cup was awarded by James S. Whipple, former Commissioner of the State Conservation Commission, for the purpose of stimulating interest in the reforestation of idle and waste lands in the State.

The Shawangunk Association planted 603,000 trees. The Cortland County Sportsmen Association ranked second with 406,000 trees. The Orange Lake Fish and Game Association, Newburgh, New York, was third with 46,000. Among the other leaders were: The Shemung Rod and Gun Club, 20,000; East Herkimer Fish and Game Club, 14,000; New Berlin Fish and Game Club, 8,000; and Sherrill Rod, Gun and Conservation Club, 6,000.

State Monument for West Virginia

A petrified forest has been discovered in the Devonian rocks near Elkins, West Virginia, according to *Forests, Parks and Beautification*, and Governor Gore has authorized that this area be set aside as a State monument.

Geologists state that the discovery is particularly worthy of preservation, inasmuch as the trees were not woody plants such as our present forest trees, but much like the palm tree.

The Devonian period extends through New York, Pennsylvania, Maryland, and West Virginia, but trees have been reported from New York and West Virginia only. The largest tree yet to be reported is from West Virginia and has a diameter of ten feet, six inches. The largest tree that has been reported from New York State had a diameter of three feet and one inch.

New Jersey Aids Water Fowl

Many acres of marshy land bordering the lakes and ponds on the Stokes State Forest, in Sussex County, New Jersey, are being planted with wild rice by the Forestry Division of the State Department of Conservation and Development in order to provide a breeding and feeding ground for wild duck and other wild water fowl. This is a part of the extensive program being carried out in accordance with the policy of the department to develop the State forests for recreational use.

Wild rice reproduces every year and makes excellent food for wild water fowl. The shallow and marshy parts of Stoney Lake, Tibb Meadow Pond and the shore front of the portion of Culvers Lake owned by the State, are being planted with this grain in an effort to attract the wild water fowl and stock the Stokes State Forest with this highly desirable species of wild game.

Co-operating with the State foresters, the New Jersey Fish and Game Commission has already stocked the trout stream and pools with thousands of Rainbow and native brook trout. Breeding pools are being created for the natural propagation of the native brook trout and as a means to help the fish survive the low water season.

Large Timber Cut in Colorado

Nineteen million board feet of sawlogs, fifty-two million linear feet of mine post material and 293,000 railroad ties were cut in the National Forests of Colorado in 1927, according to the United States Forest Service. This represents an investment of several millions of dollars, and is one of the largest saw log crops for years in the mountain district of the National Forests.

Turpentine and Rosin Stills Improved by Government

The old-type fire still, on which producers of naval stores have relied for many years for separating turpentine and rosin, can now be improved by converting it into a steam still, according to the United States Department of Agriculture.

The new still is an outgrowth of the work of the Naval Stores Unit of the Bureau of Chemistry and Soils, under the direction of Dr. F. P. Veitch, and was designed recently by J. O. Reed, Associate Engineer. Although the improvement had been in contemplation for some time an opportunity to try it out came only when a naval stores producer of Mississippi appealed to the Bureau for assistance in improving his still practice and in producing uniformly higher grades of rosin than was possible with the fire still. The department has made application for a patent covering the new still, which will be dedicated to the public.

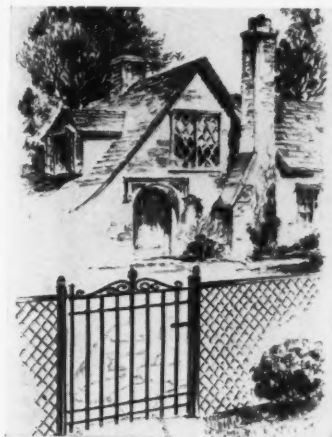
Although steam stills have been used successfully in France for many years, difficulty has been experienced in the United States in finding a type of steam still which is adaptable to the American methods of handling the gum. Several types of steam stills have been tried out in this country, but in order to operate satisfactorily it is necessary to pre-heat and clean the crude gum before introducing it into the still. The new still permits the gum and the finished products to be handled in exactly the same manner and with the same equipment otherwise that has heretofore been used in this country, but instead of fire, steam is utilized as the heating medium.

The operation of the steam still does not differ very widely from that of the fire still. The heat to bring about distillation is obtained from a system of closed coils ingeniously placed inside the still so that all gum will be uniformly cooked, and without interfering with skimming or discharging the rosin. Live steam takes the place of water usually fed into the still to carry over the turpentine, but is brought in at the bottom of the still through a sparger. Steam pressure is maintained at 125 pounds during the run, and steam going into the stills must be perfectly dry.

Illinois Will Plant Fifty Million Trees

A movement to plant fifty million trees throughout Illinois has been launched by R. B. Miller, chief forester, State Department of Conservation. The campaign will start with a quota of one million trees. In 1929 ten million trees will be planted and the mark of twenty-five million trees has been set for 1930. The remaining trees will be planted in 1931.

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Muskrats Keep Fish Alive

Although muskrats are generally fair game for the trapper, and great quantities of their skins are sold annually, they are sometimes protected because their habits are useful to their protectors. Vernon Bailey, of the United States Biological Survey, found that at Gravel Lake near the fish hatchery in North Dakota trapping muskrats was prohibited. In this region near the Canadian border winter cold is severe. The lake has been stocked with fish, and muskrats were encouraged to build their houses along the shores in order to keep breathing holes open to prevent the ice from closing up so completely as to smother the fish. As a result both fish and muskrats were multiplying rapidly, and the muskrats had become comparatively tame.

At the fish hatchery itself the muskrats were less popular, because a dam had been constructed there to form a hatching pond, and the muskrats were in the habit of digging into the dam and letting the water out through the burrows they made.

Where muskrats prove annoying it usually is easy to dispose of them, when State law permits, through trapping. In suitable localities it has been found profitable to grow them commercially on muskrat farms.

Massachusetts Tree Wardens Meet

The seventeenth annual meeting of the Massachusetts Tree Wardens' and Foresters' Association was held at the State armory, Worcester, Massachusetts, early in January. The outstanding features of the meeting were papers presented by W. Howard Rankin of the New York Experiment Station, on "Shade Tree Diseases," and by E. P. Felt, New York State Entomologist, on "Shade Tree Insects."

Will Test New Zealand Woods for Paper

The New Zealand Forest Service has sent Alex R. Entrican, engineer in forest products, to the United States with two carloads of woods grown in New Zealand which are to be tested at the United States Forest Products Laboratory for paper-making qualities. Six species, both native and introduced, are to be tested. The purpose is to find uses for thinnings from the extensive forest plantations that have been made necessary by the slow rate of growth of the New Zealand native woods.

Select Philadelphia for Allegheny Forest Experiment Station

The selection of Philadelphia, Pennsylvania, as headquarters for the Allegheny Forest Experiment Station of the United States Forest Service has been announced by Secretary of Agriculture W. M. Jardine.

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This station is being established in co-operation with the University of Pennsylvania, and officers will be furnished by the university, under an agreement recently signed by Provost J. H. Penniman, of the university, and Colonel W. B. Greeley, chief of the Forest Service.

"Selection of headquarters for the Allegheny Station," said Secretary Jardine, "marks the beginning of active work on the part of a new forest research unit of the Department of Agriculture. Although Philadelphia has been chosen as headquarters because of its central location and the stimulus to our work resulting from co-operation with a scientific institution of international repute, the field work of the station will be conducted at various centers in Pennsylvania, Maryland, New Jersey, and Delaware. In establishing such centers of field work, or branch stations, we have the advantage of cordial offers of co-operation from a number of organizations and educational institutions, prominent among them being the state agricultural colleges.

The staff of the experiment station will consist of seven persons at the start. Those appointed to date consist of R. D. Forbes, director, formerly director of the Southern Forest Experiment Station at New Orleans; O. M. Wood, of Pittsburgh, Pennsylvania; A. F. Hough, of Washington, D. C.; L. G. Schnur, of Erie, Pennsylvania; and Miss C. E. Skamser, of Colorado Springs, Colorado.

Davey on World Tour

James A. G. Davey, tree expert, left recently on a hunting expedition that will take him into many foreign countries. Instead of being big game, his quarry is big trees. He will visit Europe, Palestine and Australia.

In Palestine, Mr. Davey will examine among other trees the ancient oak standing beside the grave of Abraham. He will visit a horse-chestnut tree on Mount Aetna, 150 feet in circumference, and said to be the largest tree in Europe. In Switzerland he will look for the purple birch.

Washington Saves Cedar 2,300 Years Old

A giant cedar tree, a few miles from North Bend, below Mount Teneriffe, Washington, has been saved through the efforts of the Washington Natural Parks Association. One thousand eight hundred dollars was raised for this tree and its neighbors, situated on a small plot which will be made a part of the State park system.

This great cedar is 200 feet high and more than eighteen feet in diameter. It is estimated to be 2,300 years old by comparing its diameter with that of a neighboring stump on which it was possible to count the number of annual rings.

A. B. Brooks Resigns

West Virginia loses the service of A. B. Brooks, Chief Game Protector, through his resignation early in January. Mr. Brooks in his office capacity has been in charge of all forestry work in the State as well as the game protection activities. Ernest Angelo of Morgantown has been appointed Chief Game Protector.

Progress of Forestry Legislation at Washington

At the time of going to press, it has been announced that a hearing before the Senate Committee will be called on the McNary-McSweeney Forest Research bill late in January, and a similar hearing will be called before the House Committee on Agriculture early in February. Hearings have not yet been arranged on any of the important wild life measures.

The Flood Control Committee is still in session and forestry interests will attempt to convince the committee of the fallacy of the conclusion of the Army Engineers in ignoring forests as a factor in flood control.

During early February it is expected that the forestry items in the Agricultural and Interior Department Appropriations bills will be considered by the sub-committees of the House Committees on Appropriations. Unofficial agencies, including The American Forestry Association, plan to urge especially certain items and to support the items under the Clarke-McNary Act.

Minnesota to Classify Lands

A survey to classify the lands of Minnesota according to fitness for forestry and agriculture, for which \$35,000 has been appropriated, has been announced by State Forester Grover Conzet. Thirty-five men will be assigned to this work, which will begin immediately.

One crew will operate near Big Falls, in Koochiching County, while the second will be north of Craig, in the same county. The third crew will classify State lands in the Minnesota National Forest. Consideration will be given lands suited for agriculture on the basis of suitability for immediate settlement, and, secondly, lands which, because of unavailability to markets and other factors, can not be settled from a practical viewpoint at this time.

The other phase of the classification will be devoted to forestry and toward aiding other State groups in determining a sound State timber policy. Merchantable timber will be noted in relation to its directness to market, its fitness for immediate or later logging, and with a view toward perfecting additions to the code of cutting rules. Suitability of lands for reforestation will be noted.

A Permanent Wave for Walnut Trees

Walnut trees with figured grain throughout the entire trunk may some day be cultivated as a distinct species, instead of being found only at rare intervals, if experiments now being conducted are successful, according to George N. Lamb, Secretary of the American Walnut Manufacturers' Association.

Mr. Lamb, formerly a government forester, is conducting these experiments at the University of Nebraska. His first experiment consisted of gathering the top branches of a very highly figured walnut tree, the figure of which extended even to the smallest limbs, and grafting these branches to seedling walnut roots.

The need of determining the cause of figured grain will be appreciated when it is realized how few trees have anything but straight grain, except possibly in the vicinity of the stump. At present, only one tree in a thousand has grain that is more or less figured, while only one tree in five thousand is worth cutting for the value of the rippled grain of its wood. And of the half million trees cut each year, only one may be an unusual prize as a source of veneer for the broad surfaces of the finest furniture.

Why Antelope Decrease

Writing on "Backtrails of the Old West," Richard B. Kilroy tells why it is so difficult to preserve the antelope.

The antelope, like the buffalo, has also scorned to seek asylum in the friendly shelter of the forest, depending entirely upon his fleet foot to elude the hunter. The deer, particularly the white-tail variety, is, on the other hand, a habitant of the foot-hills and rarely wanders far from cover, for which he breaks at the first sight, sound or smell of alarm. The mule deer of the West, a larger and rarer species, is like the antelope, more at home in the open or park country on the edge of the forests, and perhaps it is to this choice that his tribe shows no tendency to increase.

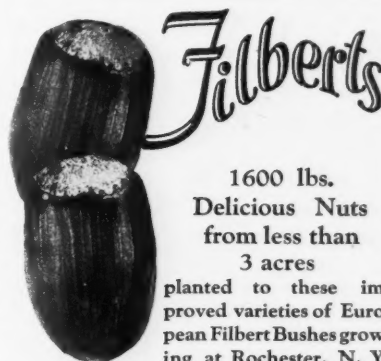
The antelope, like the buffalo, were also unwise enough to be gregarious. The large herds in which they gathered at certain seasons were more easily decimated than were the deer, who ran in couples or in small bands. The antelope's consuming curiosity also contributed to his doom. He couldn't resist the impulse to make a close investigation of any strange object that excited his attention; so that hunters often carried a red cloth or handkerchief, which, tied near the muzzle of the gun and waved from ambush, drew the inquisitive quarry within range.

Vanity, faith in his speed, good-fellowship and curiosity; these were the ingredients of his fate, the cumulative and contributory causes of his premature passing.

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THIS month the Tree Care Service Bureau is furnishing without charge to all interested a copy of Mr. Charles F. Irish's paper

"Something New in TREE PROTECTION"

which is particularly interesting to those whose trees are not doing well on account of filling in of ground around them.

For special advice to individual tree owners this month the Tree Care Service Bureau is also mailing a list of the most highly endorsed individual tree-care specialists who are available for economical and intelligent care of trees within a few hundred miles of the principal cities.

The Tree Care Service Bureau is interested in simplified routine work in tree care: pruning, root feeding, spraying, cleaning out and filling rotting holes with materials that particular cavities will carry permanently—and frequently cover with new growth. **Ask for free copy of the Government Bulletin on the "Care of Trees" and our suggestions. Address**

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Food for Game Birds in New York

Berry-bearing trees and shrubs are to be grown and distributed by the New York Development Association, Incorporated, Watertown, New York, to provide food for game birds on all large areas to be reforested in the State, according to George A. Lawyer, director of the Association. The trees will be grown at the Association's nursery and distributed to various clubs and associations for planting.

The plan of the Association calls for the planting of a billion trees within the next fifteen years and the planting of one hundred million trees annually thereafter until the four million acres of idle waste lands in the State are reforested. This is in addition to the planting of shrubs to furnish summer and winter food for birds.

Committee Named for Wood Utilization Study

A control committee appointed by Secretary Herbert Hoover of the United States Department of Commerce, to function in connection with the preparation of a manual on the economics of wood utilization in construction, has been announced by the National Committee on Wood Utilization.

The committee is composed of the following seven men: Professor F. O. Dufour, director, Division of Civil Engineering, Lafayette College, Easton, Pennsylvania; W. H. Ham, manager, Bridgeport Housing Company, Bridgeport, Connecticut; Ira W. McConnell, vice-president, Dwight P. Robinson Company, New York; T. F. Laist, director, Research in Retail Lumber, Antioch College, Yellow Springs, Ohio; Le Roy E. Kern, technical secretary, Scientific Research Department, American Institute of Architects, New York; N. Max Dunning, architect, Chicago, Illinois; William F. Chew, representing the National Association of Builders Exchanges, Baltimore, Maryland.

Proposes 10-Year Reforestation Plan for Cape Cod

The joint committee representing the Cape Cod Chamber of Commerce and the Massachusetts Forestry Association recently outlined a plan for reforestation activities on the cape for the next ten years. This plan contemplates the establishment of town forests aggregating 10,000 acres and the extension of State forests to include a minimum of ten per cent of the forest land; the provision of fire suppression equipment at each State forest, and of a patrol truck and equipment by ten of the towns; the maintenance of two forest fire patrolmen by the State in Barnstable County, and of local patrolmen by thirteen of the towns. It is also recommended

that a small appropriation for trees to be given to landowners be made annually by each of the towns with waste lands; that the planting program on the present State forest be enlarged; that plantations on the Province lands, where the chief object is sand fixation, be extended; and that the output of the Shawme State Forest Nursery be increased to meet the planting needs of the cape.

Of the 252,000 acres of land on Cape Cod, it is estimated that about 150,000 acres in the interior is better suited for forest production than for any other purpose. The State owns 8,300 acres in the Shawme State Forest, and a number of the towns have already established town forests.

The report, in referring to the fire protection experiment now being made on the cape, states that "the records since the beginning of the experiment show that with eleven per cent less money spent in the total cost of education, patrol, and suppression than was spent during a like period for suppression alone, the losses in acreage burned over have been reduced by seventy-two per cent. These results have been obtained during two exceptionally bad fire years in that district."

The members of the committee are Charles L. Ayling, chairman, Centerville; Edward S. Bryant, Boston; George E. Dean, Falmouth; Ralph S. Hosmer, Ithaca, N. Y.; Oscar C. Nickerson, Chatham; and Harris A. Reynolds, secretary, Boston.

New York Adds to State Forests

More than 6,000 acres of land in the vicinity of Mt. Marcy, Essex County, New York, will be added to the Adirondack forest preserve just as soon as titles to the various parcels are approved, according to Conservation Commissioner Alexander Macdonald.

The greater part of the area approved for purchase includes Mt. Marcy, Skylight Peak, Redfield Peak, Allen Peak, Grey Peak, Cliff Peak, Dix Peak, Macomb Peak, and Mt. Marshall, all of which exceed 4,000 feet elevation. The addition of these lands to the forest preserve will place in State ownership the entire slopes of the nine mountains, with the exception of Dix Peak, where a large area is maintained as a private park. The area includes Lake Tear-of-the-Clouds, the highest lake source of the Hudson River, and the major portion of Feldspar and Uphill brooks, together with other upper sources of the Opalescent, Au Sable, and Hudson rivers.

Complete New Park Museum

A small museum building has just been completed at the Sieur de Monts Spring, Bar Harbor, Maine, to house a collection of Indian implements. This museum is to be known as the Lafayette National Park Museum of Stone Age Antiquities.

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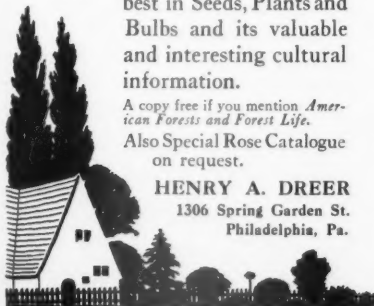
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What Next?

The following editorial appeared in a recent issue of the New Orleans Times-Picayune:

"The concrete people have acquired such a habit of seeking openings for their substitutions that even the living tree has failed to escape their ambitions. Not satisfied with making concrete stone and concrete timbers, piling, etc., the cementers have now proposed to reconstruct in concrete the famous Washington Elm, in Massachusetts. Cambridge, Massachusetts, has asked the Legislature to authorize the erection of a facsimile of the historic tree, now dead of old age, to be made of concrete—ferro-concrete no doubt—as part of the forthcoming memorial celebration of the Pilgrims' settlement. The protagonist says that by the cement process accurate mimicry and true artistry are achieved and the natural bark and wood are reproduced with a fidelity that challenges the closest inspection. We dare say the cement propaganda will insist that the seeds from these cement oaks will reproduce more vigorously even than those from the white oak, red oaks and live oaks of our Southern forests."

Preserving Canada's Forests

The Society for the Preservation of Canadian Forests has just been formed with headquarters in Vancouver, B. C. The object of the new organization is to deal with the basic cause of forest fires, rather than with the effect, and to cooperate with other similar bodies in the Dominion. The new organization, in association with other bodies of a like character, intends to enlighten the people of Canada on the primary cause of forest fires and to further any educational work now being carried on in that direction.

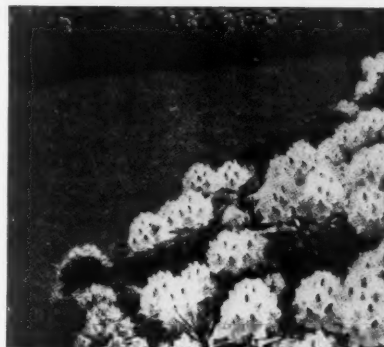
America-Beautiful Contest

To arouse appreciation of the outstanding features of American scenery, the National Life Conservation Society, New York City, offers prizes for the best original poems inspired by some specific natural scenery. The contest is open to anyone living in the United States and Canada. A first prize of \$100 is offered, a second prize of \$50, and five prizes of \$10 each. The contest closes March 1, 1928.

Wichita Forest Sells Buffalo

According to the United States Forest Service, the Wichita National Forest and Game Preserve, in Oklahoma, in the past eighteen months, sold enough buffalo and elk to net the forest \$4,642.98. The sales, it was announced, were due to the increase in the two herds and the financial aspects of the problem of maintaining them.

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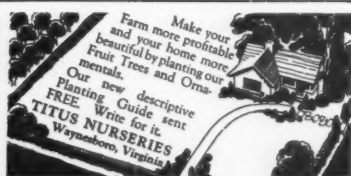
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Ask the Forester

Each Month Forestry Questions Submitted to the Association Will be Answered in This Column. If an Immediate Reply is Desired a Self-Addressed, Stamped Envelope Must Accompany Letter.



QUESTION: Is there any tree which grows successfully in badly alkali soil?—R. H., Nevada.

ANSWER: Yes. The Russian olive, which has been tried out in Utah on such soils, is reported successful. It is low-branched, has a gray, dusty looking foliage and is well adapted for windbreak purposes.

QUESTION: Are steel railroad ties as a substitute for wood a success?—J. H. P., Missouri.

ANSWER: Apparently not. A recent syndicate article by Dr. Frank Crane on "Substitutes for Wood" drew fire and brought out the fact that at least one steel company in the United States has abandoned the use of steel ties on its own railroad; that steel ties have been discarded in England, and that one large municipal railway in this country has resumed the use of wooden ties after years of using steel. The reason lies in the fact that wood has the greater resilience, and that when treated with a good preservative the better species last longer than steel.

QUESTION: Where can I get a good Forest Ranger correspondence course?—H. H. T., Colorado.

ANSWER: All of the courses which have come to the attention of The American Forestry Association misrepresent the work and are of little value in preparing for this sort of work. You can get particulars regarding the nature of the work and the examination by writing to the Forest Service, Washington, D. C. The best preparatory experience is temporary work on a National Forest during the fire season.

QUESTION: What is plywood and where and when did it originate?—S. E. B., Indiana.

ANSWER: Plywood is a term used to designate built-up wood, made by gluing together thin sheets or plies. The art of veneering—or making plywood—probably originated in Egypt more than thirty-five centuries ago. Specimens of veneered furniture taken from the tomb of Rameses, Tutankhamen and other Pharaohs attest to the skill of these early craftsmen.

QUESTION: Is the white pine, once recovered from an attack of the blister, immune to further attacks?—W. E. P., New York.

ANSWER: No. Attacks are local and so-called recovery is due only to removal of the attacked parts or to the death of these parts, as in the case of shaded branches, so that the disease can not travel through the dead wood. Presence of an alternate host might result in further attack.

Research Positions at Madison

Candidates are sought for positions on the technical staff of the United States Forest Products Laboratory, Madison, Wisconsin. The entrance salaries for these positions range from \$2,000 to \$5,000 a year, depending on the candidate's education, experience and fitness for research. The following positions have been announced:

Senior physicist, to organize and conduct individual research on the physical properties of wood and its constituents; associate physicist, to assist in this work; technical editor and associate editor, for critical review and adaption of technical papers and reports; architectural engineer, to make studies of the use requirements of wood entering into various parts of buildings; assistant chemist, to study the painting properties of wood of different species; assistant chemist, investigation of the chemical and physical properties of glue; statistician, to make detailed mathematical analyses of the variations in wood properties as indicated by test data; dry kiln engineer, to plan and conduct research to improve dry kiln methods and wood technologist, to plan, conduct and supervise research work on the microscopic structure of wood.

Two Named to Wood Utilization Committee

A. W. Armstrong, president of the Ayer and Lord Tie Company, Chicago, Illinois, and R. E. Irwin, assistant manager of the Potlatch Lumber Company, Potlatch, Idaho, have been appointed members of the National Committee on Wood Utilization of the United States Department of Commerce. Mr. Armstrong has been assigned to the wood preservation group of the committee, while Mr. Irwin will give his time to extensive experiments in sawmill machinery.

Vanishing Fur Bearers

For the past two seasons of trapping, the fur catch in this country has declined at an alarming rate, says the United States Biological Survey. The 1925-26 catch was twenty per cent less than in the previous year and in the 1926-27 season the decline was even greater.

"If trappers continue to disregard the fur laws," says Paul G. Redington, chief of the Survey, "and to trap out of season, more and more species will be reduced below the point where it is profitable to take them. If States do not take the steps necessary for protection of their stocks of fur animals, the revenue from this source is sure to diminish and many of the former suitable haunts of these valuable and interesting animals will know them no more. The main requisite is a recognition of the fact that trapping should be allowed only during the period of prime fur and should not include the breeding season."



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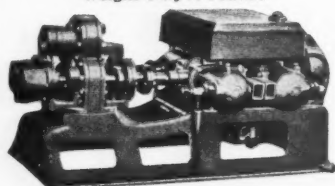
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Study Our Migrant Shorebirds in South America

In view of additional protection recently accorded shorebirds in this country by amendment to the regulations under the migratory-bird treaty act, a new bulletin just issued by the United States Department of Agriculture, "Our Migrant Shorebirds in Southern South America," is of special significance. Many of the birds migrating between the United States and Canada and protected under the treaty make extended journeys each winter to South America.

Of the many species of North American shorebirds, there are only twelve that do not visit South America part of the year, and no fewer than twenty-four species pass as far south as Argentina and Chile. In spite of ample protection during their breeding season, many of these birds had been decreasing in numbers to such an alarming extent that the Biological Survey sent Dr. Alexander Wetmore, author of the new bulletin and now assistant secretary of the Smithsonian Institution, to South America to investigate the conditions encountered by our shorebirds in their winter homes.

Harriman State Park Enlarged

One thousand acres will soon be added to Harriman State Park, New York, through condemnation proceedings instituted by the Park Commissioners. The object of these proceedings is to acquire additional mountain lands in Rockland and Orange counties within and adjoining the present area of the park. The movement has been approved by the State Council of Parks, the Finance Committee of the Senate, and the Ways and Means Committee of the Assembly, and by Governor Smith.

Tern Banded in Labrador Found in France

Another trans-Atlantic flight—and probably a "non-stop" one—has come to light. A communication received by the United States Biological Survey from Professor Robert Poncy, of Geneva, Switzerland, incloses a clipping from *Le Chasseur Français* to the effect that M. Robert Pradier, of Port-Dauphine, La Rochelle, France, found on October 1, 1927, on the Greve de Marsilly, near La Rochelle, "a kind of black-headed gull, known in the region as 'hirondelle de mer,' or sea swallow." On the right foot of the bird was found an aluminum ring with the inscription: "Notify Biological Survey," and the number, 548656.

The Biological Survey, which supervises the bird-banding work in the United States and Canada, finds in its records that band No. 548656 was that of an Arctic tern

banded when it was between one and five days old, July 22, 1927, at the Red Islands, Turnevick, Labrador. The straight distance from Labrador to the coast of France is about 4,200 miles, a remarkable travel record for so young a bird.

This is the second trans-oceanic bird return in the records of the Survey, the first being that of a common tern banded as a nestling on the coast of Maine in 1913, and recovered four years later in the delta of the Niger River on the west coast of Africa. Several other remarkable distances have been traveled by birds recovered from South America. The Biological Survey has about 1,000 volunteer cooperators scattered throughout the United States and Canada who are helping in the bird-banding work, by means of which valuable data are being collected for the solution of problems regarding the migratory and other habits of wild birds.

The Care of Shade Trees

That the cultivation of shade trees is a very important factor in municipal forestry is evidenced in a bulletin recently published and distributed by O. C. Charlton, city forester, Dallas, Texas, entitled "The Care of Shade Trees." The publication deals chiefly with cultivating, watering and fertilizing, and names a number of reasons why the shade trees die. Mistreatment in transplanting, insufficient or improper watering, unfavorable soil conditions and general neglect are given as the chief factors to guard against.

Indiana State Forest Pays

Conducting the 4,500-acre tract of State forest in Clark County, Indiana, along forest conservation lines paid all operating expenses and returned several hundred dollars profit during the last fiscal year, though only a small area was thinned and sold. Approximately one hundred acres were cleared of diseased and mature timber, these yielding more than \$3,000 in crossties, lumber, posts, and fuel wood. Tops were utilized down to a diameter of two inches.

National Forest Area Increased in North Carolina

The National Forest Preservation Commission has authorized the purchase of 1,483 acres of forest land in Macon and Swain counties, North Carolina, to be added to the National Forests of the State. This authorized purchase will bring the National Forest area in North Carolina to 377,515 acres, of which 117,022 acres are in the Nantahala and 250,000 acres in the Pisgah National Forest.

A Timberland Management Course for Woodsmen

By F. G. WILSON

The College of Agriculture of the University of Wisconsin recently took a radical step in forestry education by offering a ten-day course in Timberland Management to logging superintendents, camp foremen, cruisers and State forest rangers. Fifteen men have been enrolled.

The United States Forest Service and the Wisconsin Conservation Commission are co-operating with the college in this work. Raphael Zon, Director of the Lake States Forest Experiment Station, and the writer are in charge of the course. Special subjects are covered by R. D. Garver and Arthur Koehler of the Forest Products Laboratory; C. A. Hoar, in charge of Federal cooperation for forest protection in the Lake States; W. A. Rowlands of the College; and C. L. Harrington, State Forester. Discussions by Dean H. L. Russell of the Wisconsin College of Agriculture; State Conservation Director Louis B. Nagler; Colonel W. R. Greeley, Chief of the Forest Service; R. B. Goodman and W. A. Holt, leaders in the lumber industry who have practiced selective logging, are contributed to the course.

Forest Management is the chief subject, beginning with an analysis of present practice, with most of the time devoted to the details of selective logging. The growth habits and requirements of the commercial trees of the region are covered. Forest crop laws, forest fire laws and fire fighting methods are discussed. To round out the course, wood identification, tree identification, log scaling, surveying and the use of explosives are included. The purpose is to give information in addition to what the average woodsman is already familiar with.

Would Reforest Waste Lands in Indiana

At a recent meeting of the Indiana Coal Producers Association a plan for the planting of trees on waste lands of these companies was presented by R. F. Wilcox, acting State Forester for Indiana. The plan consists of having each operator plant five acres of land for every unit of stripping machinery now in operation. It would require the planting of 300,000 spruce trees, supplied by the State forest nursery.

California Endorses Wider Highways for Tree Planting

Tree planting along the state highways of California is receiving a large share of attention from the State Highway Commission. Plans are now being prepared by the Commission for securing an eighty-foot right of way throughout the state, primarily for the planting of roadside trees.

Novel Fire Alarm

In front of the Laguna Ranger Station, which is the center of the Laguna Recreation Area of the Cleveland National Forest, in California, and used by 25,000 people annually, hangs a novel fire alarm. This "fire bell" is nothing more than a large locomotive tire hung within a strong wooden frame, both frame and tire being painted a bright red.

The "fire bell" has quite a history, it having been used for the same purpose in the town of La Mesa for 15 years. Recently the town put in a new alarm system and the "bell" was presented to the Cleveland Forest for use on the Lagunas. When properly "rung" with a ten-pound sledge its deep tones can be heard for miles, and campers, resort keepers and summer home permittees respond from all directions just as the citizens do in many small towns when the fire bell gives the alarm.

Wood Chopping Bees

The organization by State Forester Hawes, of Connecticut, of wood chopping bees held on the State forests has proven a boom. Its popularity is evidence by the fact that about forty people attended the first bee held at the Peoples Forest in Barkhamsted.

NEW INDIAN FIRE PUMP

A well-built fire pump for long, hard service



HEAVY
BRASS
PUMP
5 GALLON
TANK
WITH LARGE
BRASS
STRAINER
AND BRASS
COVER

Easily Carried and Operated by Anyone

The Indian can not be excelled for fighting forest fire, brush fires, grass fires—in fact, for fighting fires anywhere.

Tank curved in shape like a pack basket; conveniently carried on the back and furnished in galvanized steel or solid brass, as ordered. Pump entirely of brass with no leather packings or parts to wear out; always in working order, ready for any fire emergency. Slow, easy pumping throws powerful 50-foot stream to any desired point.

Easily carried about anywhere; quickly extinguishes fires in trees, stumps, crotches, grass, etc.

A valuable fire pump for small or large forests. Highly recommended.

Write for descriptive circular and prices on the Indian and other styles.

Manufactured by

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PROTECT YOUR FORESTS

These Galvanized Steel Towers

designed to meet the requirements of the

Forest Service

afford the best means for locating forest fires so that they may be extinguished before they have become destructive.

This type of tower is made from 21 ft. to 100 ft., or more, in height. It is safe and easy for anyone to climb.

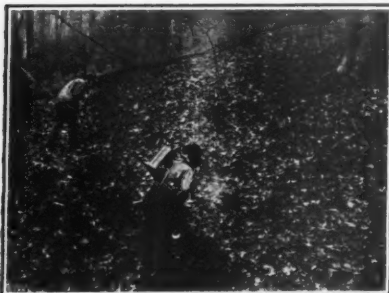
These towers are made so that they are quickly built up from the ground a piece at a time. They are complete in every detail essential in a most satisfactory observation tower.

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Photo courtesy Penn. Dept. of Forests and Waters



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IS MOST EFFECTIVE

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The Hauck Torch will ignite material too damp to be fired by any other means. Large areas can be cleared safely, economically and quickly.

Also ideal for clearing fire trails and back-firing

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New York

Trees of Southern California

(Continued from page 76)

uncompromising whiteness; stiff, well-trimmed shrubs; a sunken garden with garish bloom. Here and there white stone benches gleam, but they do not invite you to sit down. Their effect is too obviously artificial. A correct quiet pervades the place, but not restfulness. There are no trees. Softening masses of tree shadow are needed to relieve the glare. Too much brilliancy hurts.

A few trees at the entrances would offer a polite, if not an eager, hand of welcome. Even the cultivated trees that such a setting might demand would lend a friendly charm. Once inside the Samarkand, you may sink into luxurious shadow, but you have not entered by invitation.

Trees send something like a benediction upon those who walk in their shadow. There is something spiritual in their humanness; for, though they are deeply rooted in the earth, their heads are far enough above it to breathe clean air, to see long vistas, to commune with the skies. I missed the influence as I climbed the sun-baked steps from the roadway to Mt. Rubidoux, where a cross in memory of Father Junipero Serra, the founder of the missions, rises from a barren pile of rocks, alone, unsheltered from the summer sun that beats mercilessly upon it. I wished for a tree—a magnificent eucalyptus, sensitive and sympathetic, or a weather-worn, gnarled live oak that braved hardship even before the missionary had founded his well-loved San Diego. And I, a pilgrim with all the rest to that hallowed spot, could imagine the sainted man in his coarse brown robes, resting his tired, sandaled feet in its shadow, while he told his brown beads, glad of the friendly presence that would watch one hour with him.

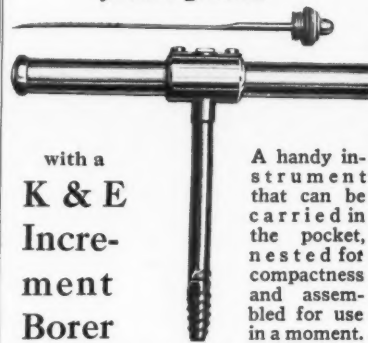
Forestry Activities in Great Britain

BY A. EDWARD HAMMOND

The exceptionally wet summer which has been distinctly unfavorable to most crops, has had more of a favorable effect on the forestry seedlings and transplants in Great Britain. In some cases, however, unusually late frosts effected some serious depredations in many districts, killing off a proportion of seedlings and seriously delaying some of the less sturdy varieties of transplants.

The proportions of different species planted throughout Great Britain during the past planting season are as follows: fifty per cent, Scot and Corsican pine; twenty-five per cent Norway and Sitka spruce; ten per cent European and Japanese larch; ten per cent Douglas fir; and five per cent hardwoods.

Examine the HEART of the tree without injuring its future growth



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Cut-over property can be improved by forest management, the basis for which is a complete forest inventory and map of young and mature standing timber.

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